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A. DEBAUVE

INGÉNIEUR EN CHEF DES PONTS ET CHAUSSÉES

PROCÉDÉS

ET

MATÉRIAUX DE CONSTRUCTION

TOME PREMIER

SONDAGES, TERRASSEMENTS, DRAGAGES

ATLAS

PARIS

Vve Ch. DUNOD, ÉDITEUR

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PROCÉDÉS ET MATÉRIAUX DE CONSTRUCTION

TABLE DES PLANCHES

NUMÉROS DES PLANCHES	DÉSIGNATION DES PLANCHES
I	1. Tige de sonde et rallonge. — 2. Clef de retenue. — 3. Tourne-à-gauche. — 4. Soupapes à boulet, à clapet. — 5. Cloche à vis. — 6. Trépan. — 7. Tarière américaine. — 8. Langue américaine. — 9. Caracole. — 10. Tête de sonde. — 11. Petite sonde de fondation. — 12. Appareil pour extraction de témoins. — 13. Manche de manœuvre. — 14. Chèvre à branches mobiles. — 15. Coupe du sol fournie par un sondage. — 16. Installation pour sondage en rivière. — 17. Sondage par puits blindés.
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III	1. Excavateur Couvreux à élinde pivotante pour le travail en cunette. — 2, 3. Application des excavateurs Couvreux à l'exécution d'une grande tranchée. — 4. Excavateur Jacquelin et Chèvre. — 5. Excavateur Sayn combiné avec une grue à vapeur.
IV	Perforateur Sommeiller employé au Mont-Cenis. — 1. Coupe longitudinale — 2. Plan. — 3. Affût et son tender.
V	1. Perforateur Dubois et François. — 2, 3, 4. Perforateur de la Roche-Tolay.
VI	1 et 2. Baleine à terrassements. — 3. Tranchée exécutée à la brouette. — 4. Confection d'un remblai pour fouille latérale avec plan incliné. — 5, 6, 7. Exécution d'un remblai à la brouette.
VII	1, 2, 3. Plans inclinés pour terrassements. — 4. Plans inclinés du chemin de fer de Portes à la Levade. — 5, 6. Poulie de plan incliné. — 7. Profil du chemin de fer à chaîne flottante d'Aïn-Sedma à Tamanar. — 8. Berline de ce chemin de fer.
VIII	1. Drague à cuiller américaine. — 2. Machine à cuiller pour déblayer à sec. — 3 à 8. Câble aérien transporteur automoteur.
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XI	1 à 16. Exécution de la tranchée de Fontaine-au-Pire.
XII	1 à 6 et 9. Consolidation et revêtement des talus de la tranchée de la Loupe. — 8. Tassement des remblais dans la vallée de la Vilaine.
XIII	Consolidation des talus par le procédé de Sazilly. — 1 à 5. Talus de déblai. — 6 à 9. Talus de remblai.
XIV	Consolidation et assainissement de talus (Compagnie du Nord). — 1. Rigole de suintement. — 2, 3, 4. Assainissement de la tranchée de l'Épinay. — 5. — Assainissement de la tranchée de Normanville. — 6. Coupe du dégorgeoir. — 7. Rencontre d'une rigole et d'un dégorgeoir.

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NUMÉROS DES PLANCHES	DÉSIGNATION DES PLANCHES
XV	Consolidation et assainissement de talus (Compagnie du Nord). — 1, 2, 3. Assainissement par tuyaux de drainage. — 4 à 7. Réparation d'un éboulement.
XVI	1, 2. Grande drague à élinde centrale. — 3, 4, 5. Grande drague à élinde latérale. — 6 et 7. Consolidation et assainissement de la tranchée de la rue de Guise.
XVII	Dragues anciennes. — 1, 2, 3. Drague à cuiller du port de Venise. — 4, 5, 6. Drague à mâchoires du port de Malte. — 7, 8. Drague à cuiller employée à Flessingue en 1808. — 9. Drague à cuiller du port de Brest, mue par une roue à tympans.
XVIII	1, 2. Drague à cuiller et à treuil employée sur le Doubs. — 3. La même drague avec tenailles pour l'enlèvement des blocs. — 4. Drague à main. — 5, 6, 7. Treuil de drague.
XIX	1, 2, 3. Bateau à vannes employé pour ouvrir des passes dans les bancs de graviers de la Garonne. — 4 et 5. Ancienne drague à godets à élinde latérale, mue par une roue à tympans.
XX	1, 2. Drague à treuil pour enlever le gravier. — 3 à 9. Drague à roulettes et à treuil pour canal.
XXI	1 à 5. Petite drague à godets mue à bras. — 6 et 7. Drague à tenailles et à treuil pour l'enlèvement des blocs. — 8. Outils divers pour l'enlèvement des débris de vieilles maçonneries.
XXII	Drague à godets mue par une locomobile et mobile sur appontement.
XXIII	1, 2. Drague à cuiller mue par une roue pendante, dite drague aquamotrice. — 3. Drague canal à cuiller, ou drague Perris. — 5 à 9. Drague à godets avec élinde verticale, système employé par M. de Règemorte au pont de Moulins.
XXIV	1, 2. Grande drague à couloir de l'isthme de Suez. — 3, 4. Déchargement des déblais transportés par bateaux.
XXV	Dragues américaines à cuiller et à mâchoires : 1, 2. Drague d'Osgood. — 3. Drague d'Osgood perfectionnée. — 4. Vue d'ensemble du bateau dragueur Morris et Cumings. — 5, 6. 7. Mâchoires de la drague Morris et Cumings.
XXVI	Bateaux pompeurs et porteurs de la vase employés à Saint-Nazaire. — 1, 2. Bateaux pompeurs. — 3. 4. Porteurs à hélice.
XXVII	Grande drague à godets, à élinde centrale, employée sur l'Elbe, à Hambourg.

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Fig. 1.
Tige de sonde et rallonge.

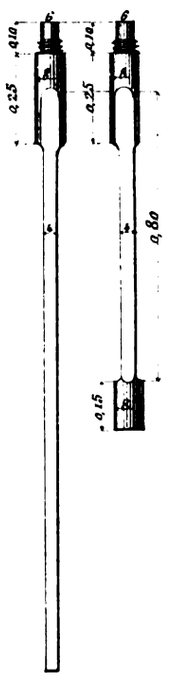


Fig. 2.
Clef de retenue.

Vue de face *Vue de côté*

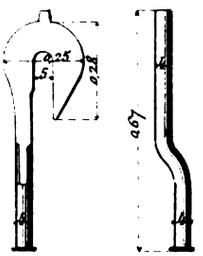


Fig. 3.
Tourne à gauche

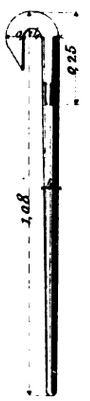


Fig. 4. Soupapes:
à boulet à clapet.

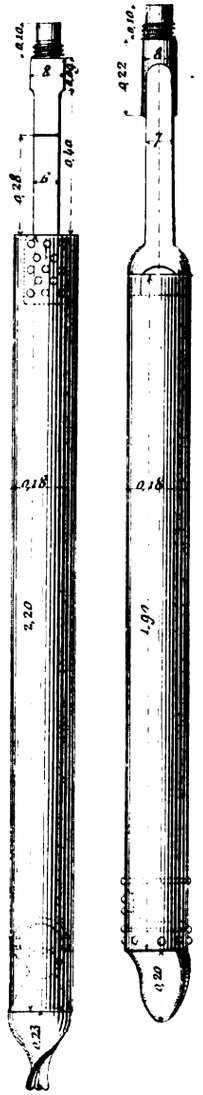


Fig.
Tre

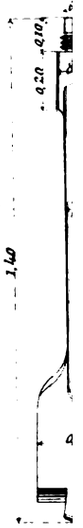
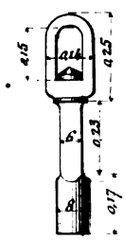


Fig. 5.
Cloche à vis

Fig. 10.
Tête de sonde



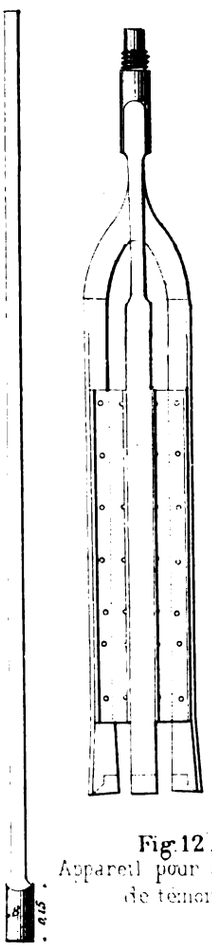
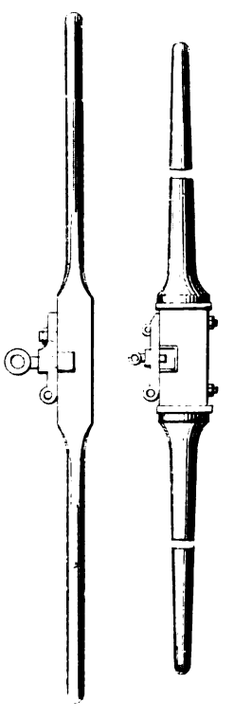


Fig. 12.
Appareil pour extraction
de témoins

Fig. 13. — Manches de manœuvre. *(fer et bois)*



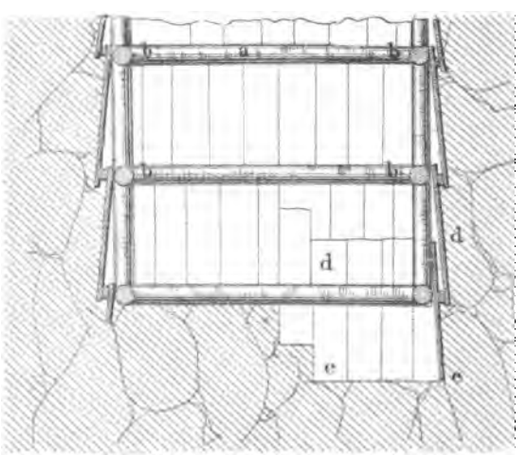


Fig. 17.
Sondage par puits blindés.

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Fig. 6.
Tarière.

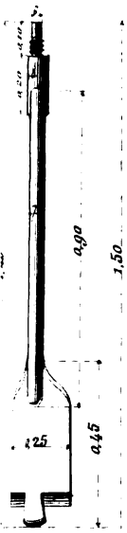


Fig. 7.
Tarière.

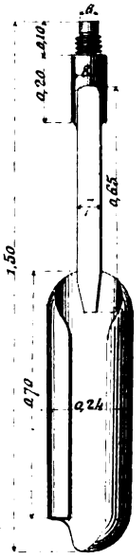


Fig. 8.
Langue américaine.

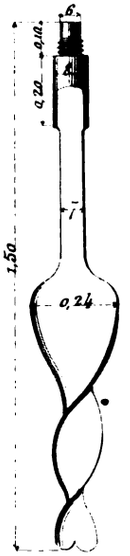
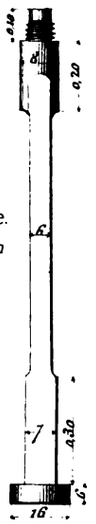


Fig. 9.
Caracole.
Élévation



Vue de dessous.

Fig. 16.
Installation pour sondage en rivière.

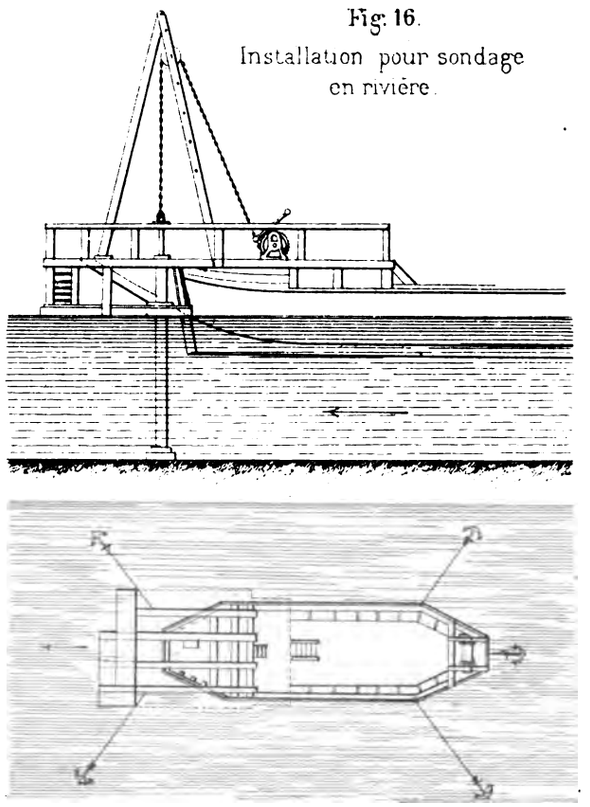


Fig. 11.
Sonde de fondation.

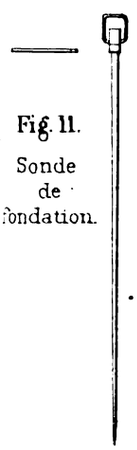


Fig. 14.
Chèvre à branches mobiles

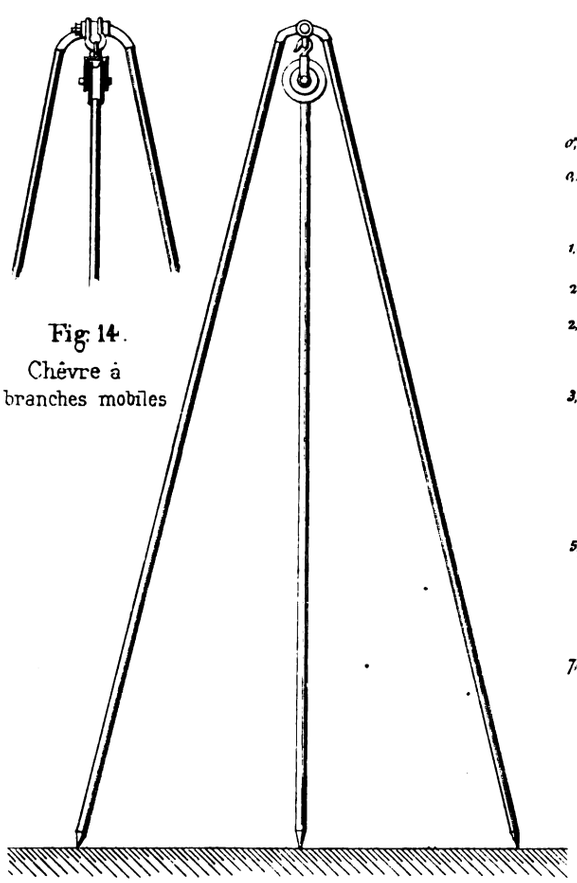
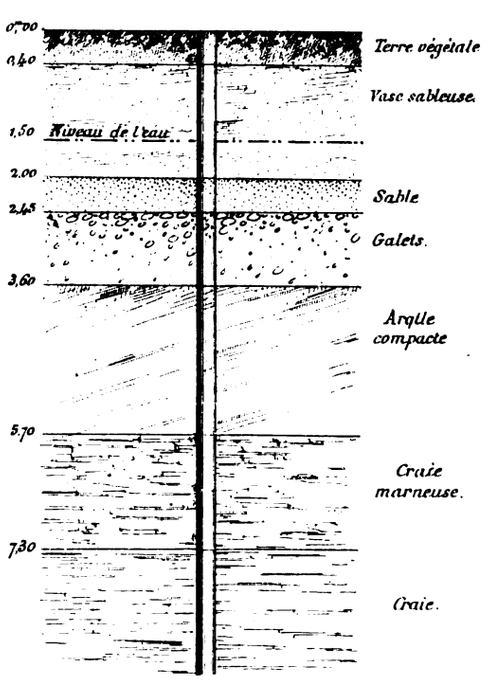


Fig. 15. Coupe du sol fournie par un sondage



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Excavateur Couvreux

Fig 1. Elevation

(Echelle $\frac{1}{50}$)

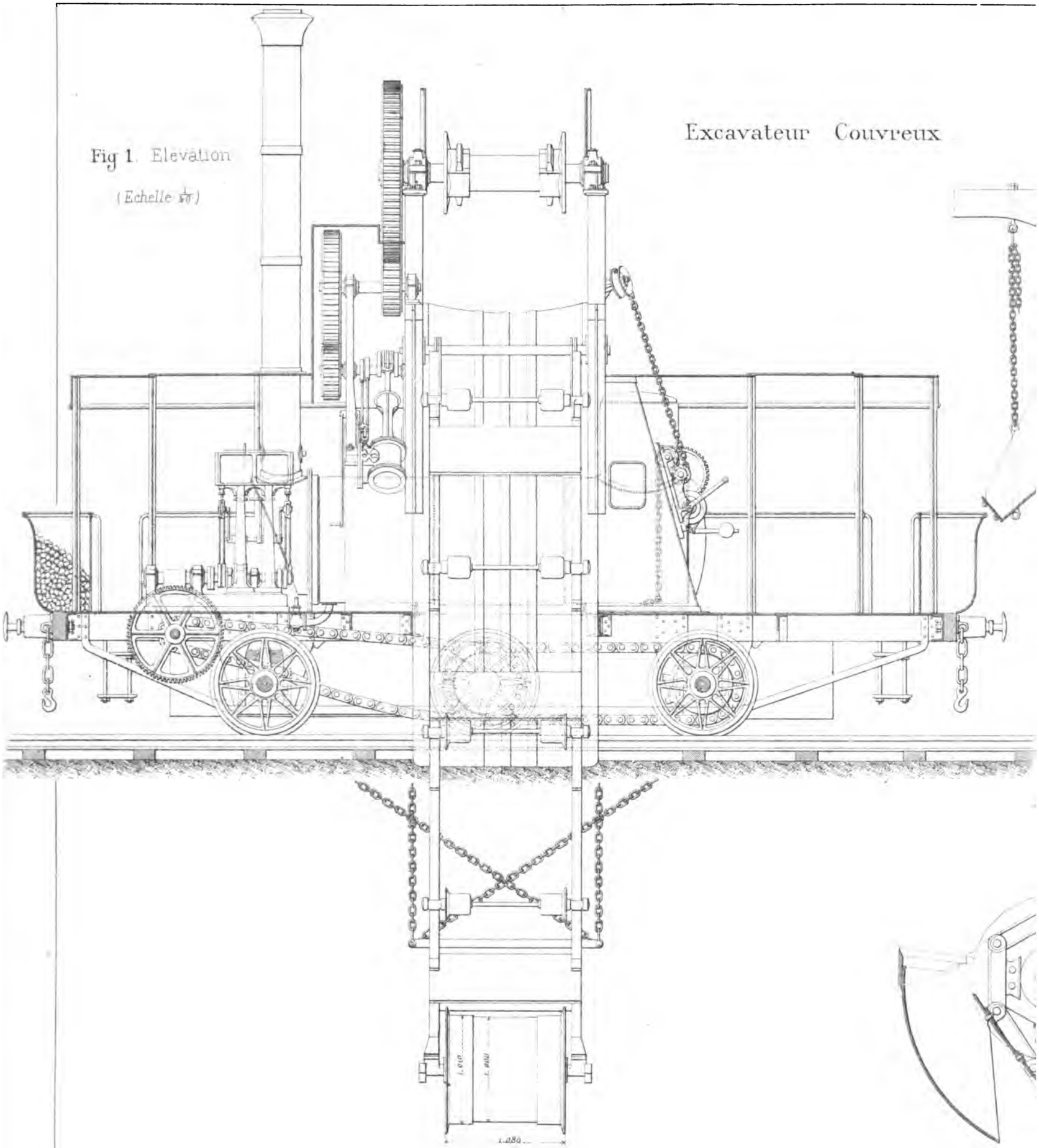

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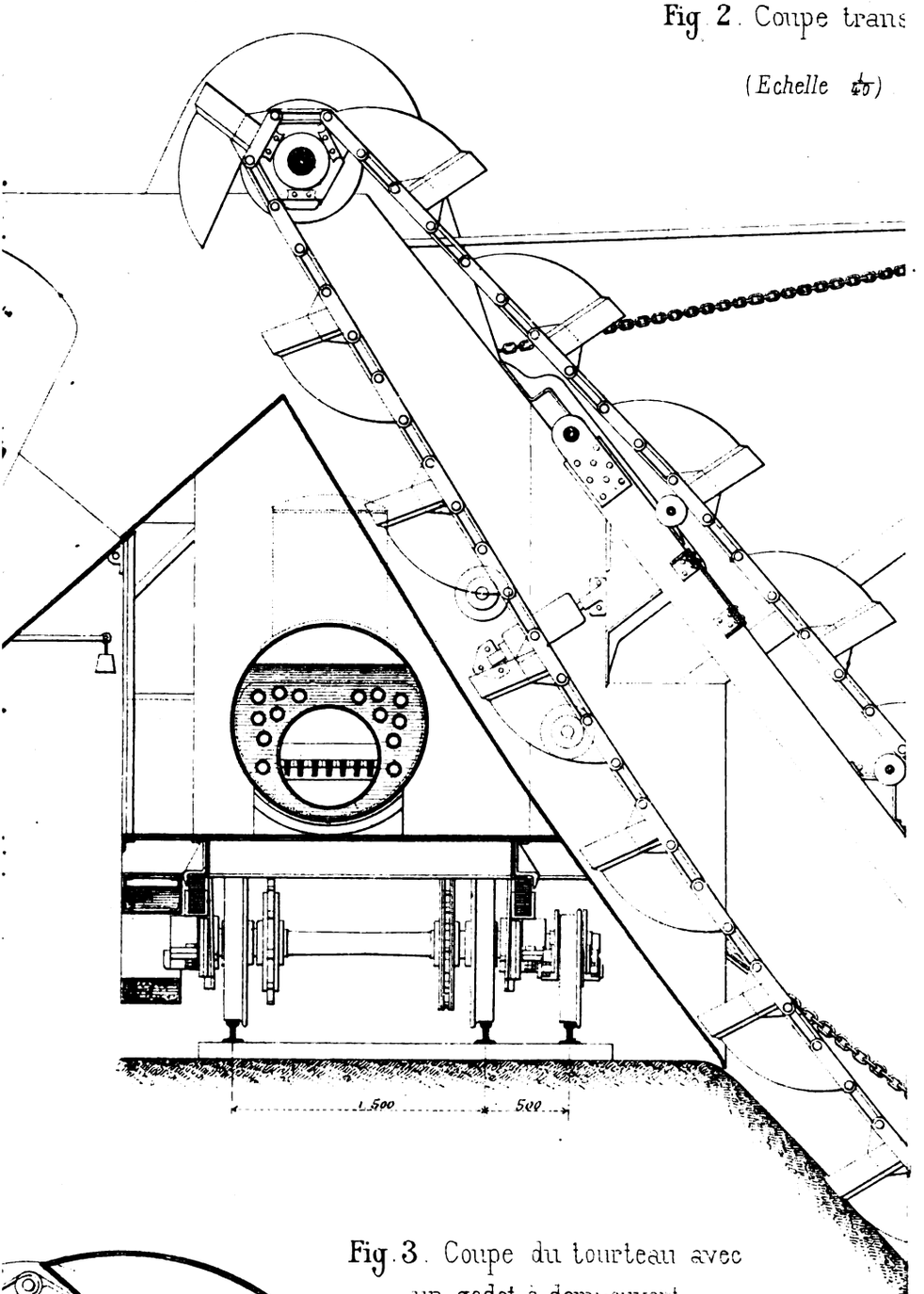
Fig. 2. Coupe trans

(*Echelle* $\frac{1}{40}$)



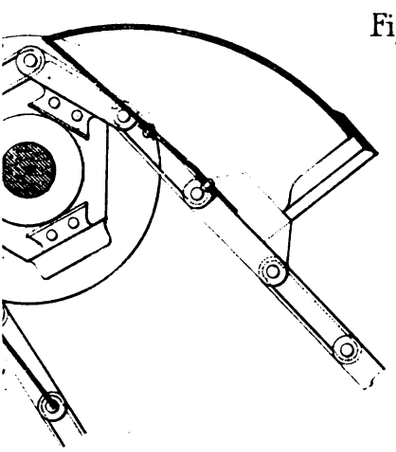


Fig. 3. Coupe du tourteau avec un godet à demi-ouvert pour le deversement

(*Echelle* $\frac{1}{50}$)

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Fig 1. Elévat

(*Echelle* $\frac{1}{10}$)

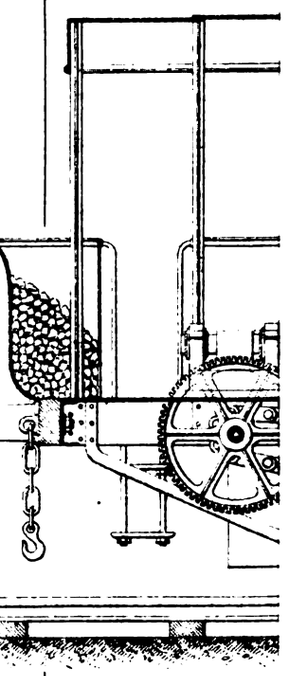

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Fig 1. — Excavateur Couvreux à élinde pivotante pour travail en cunette

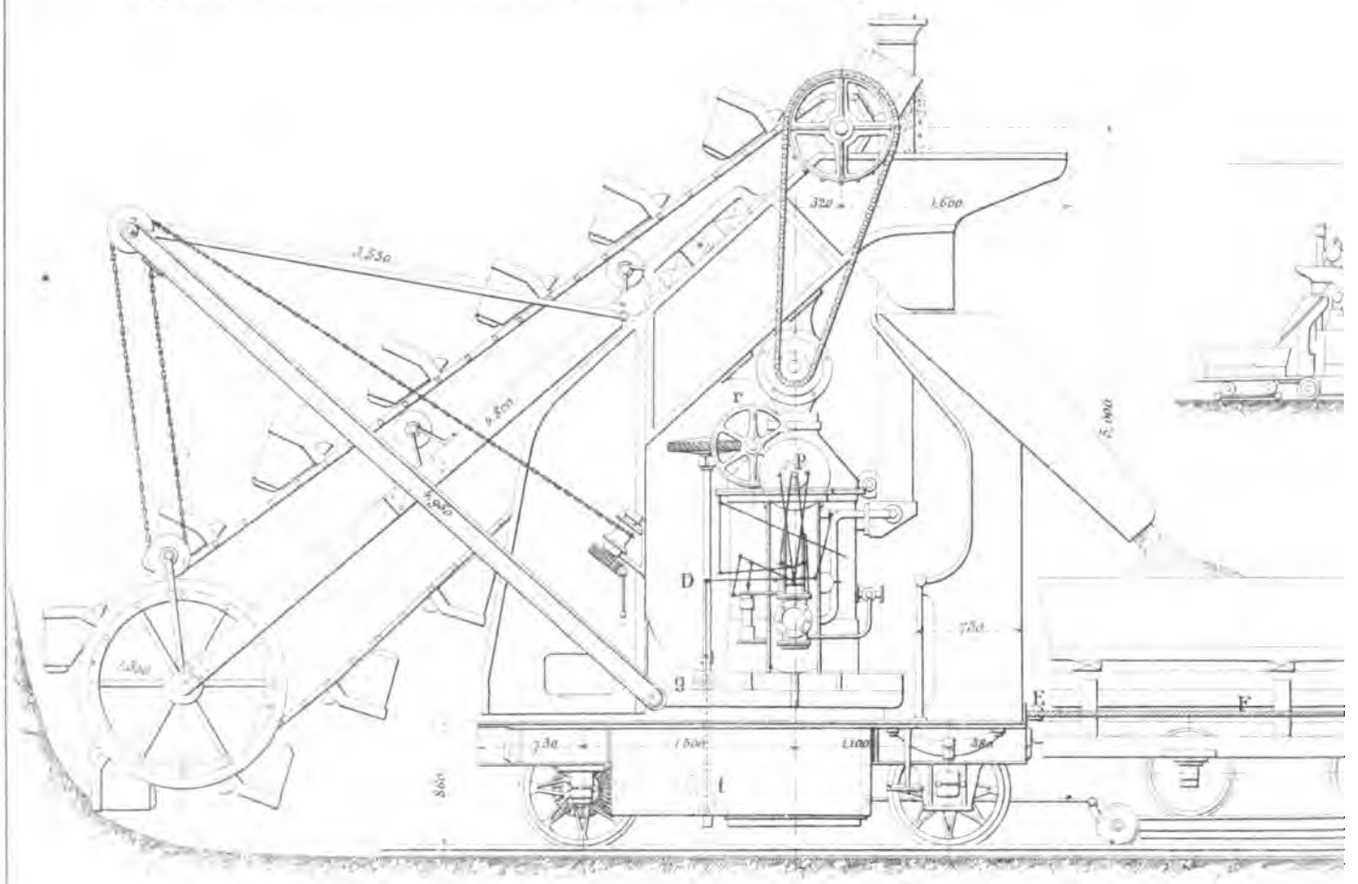
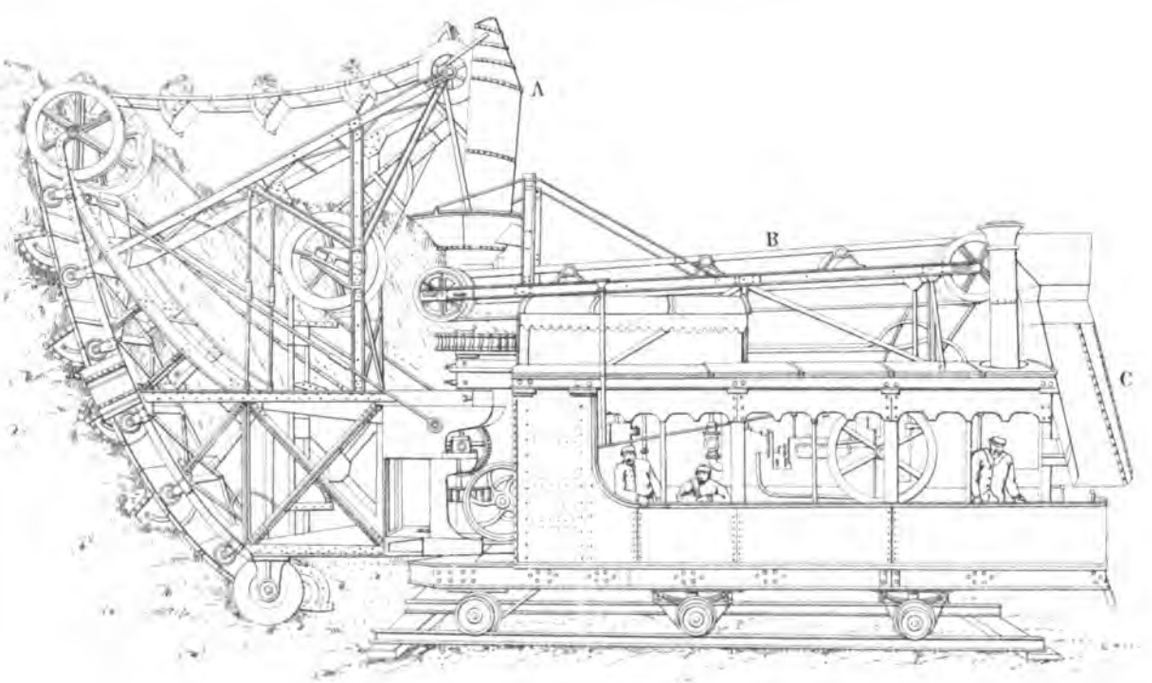


Fig 4. — Excavateur Jacquelin et Chèvre



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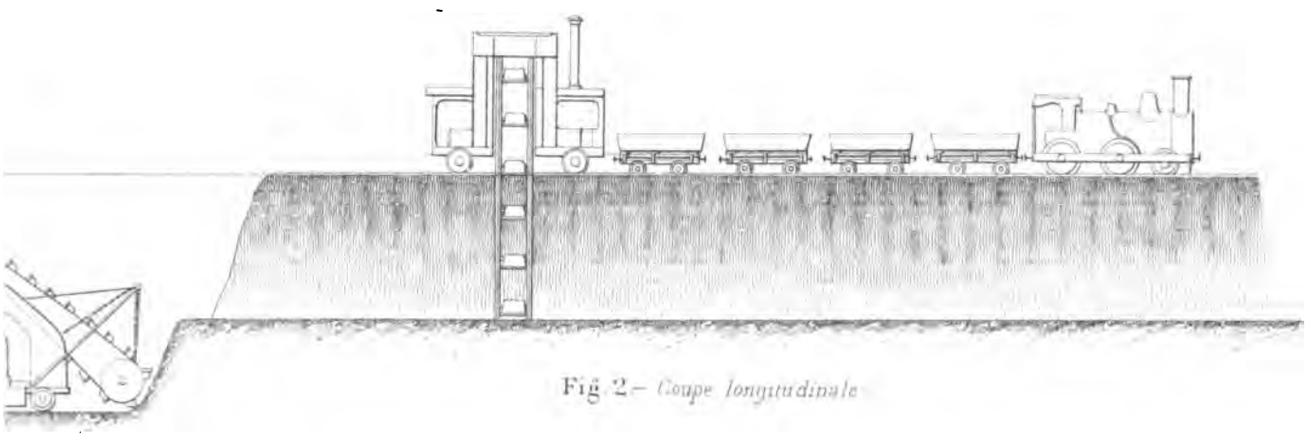


Fig. 2.— *Coupe longitudinale*

Application des excavateurs Couvreux à l'exécution d'une grande tranchée.

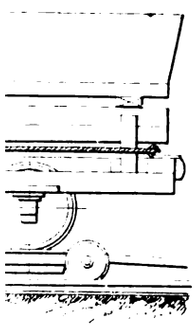


Fig. 3.— *Coupe transversale*

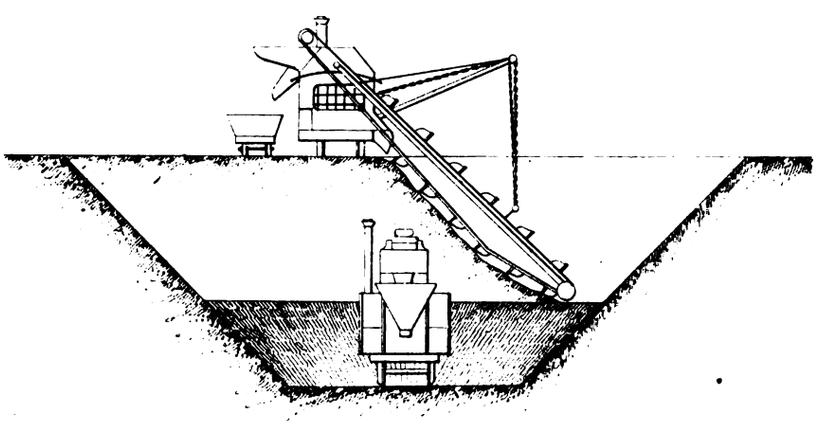
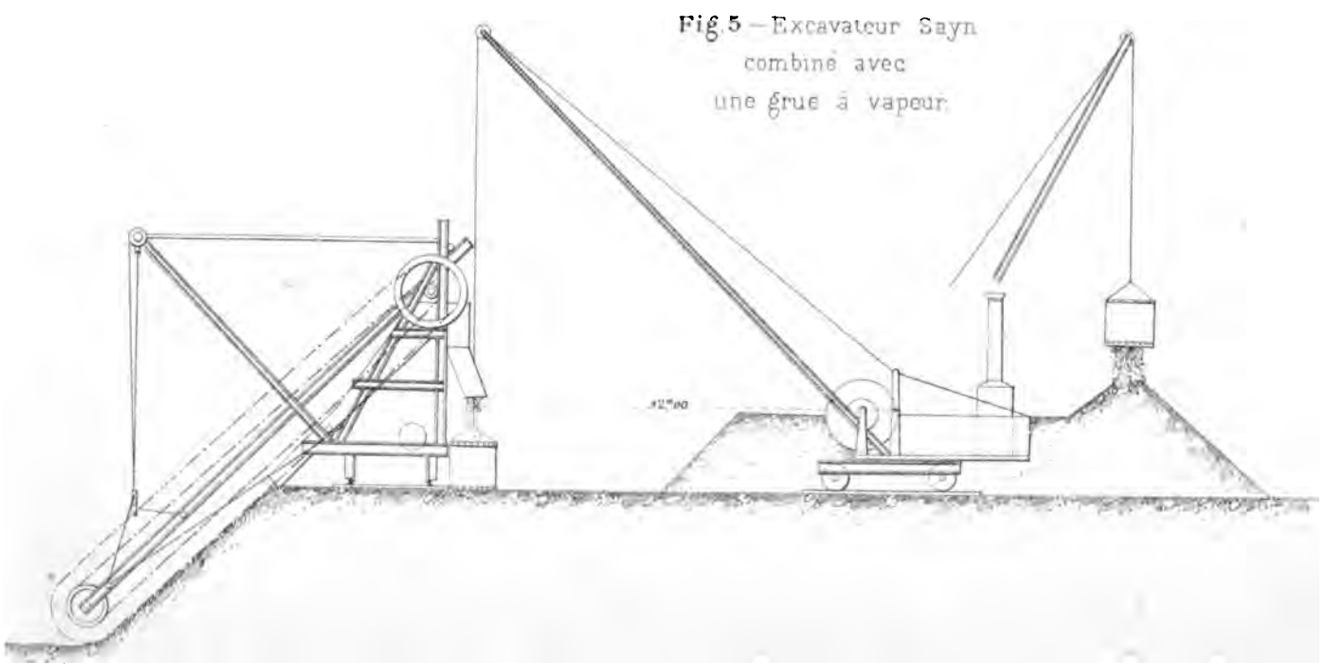


Fig. 5 — Excavateur Sayn combiné avec une grue à vapeur



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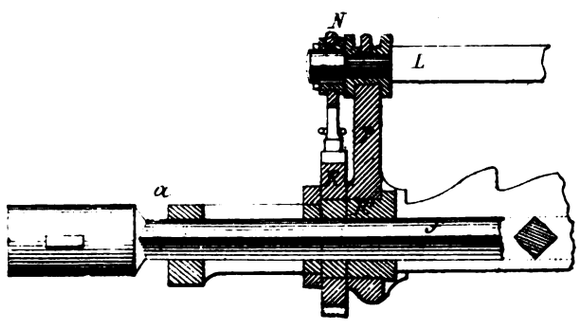
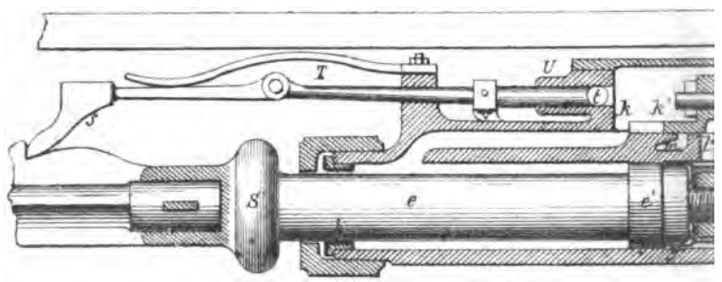
Perforateur Sommeiller (Dernier mo

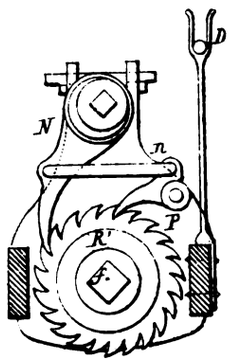
Fig. 1. Coupe l

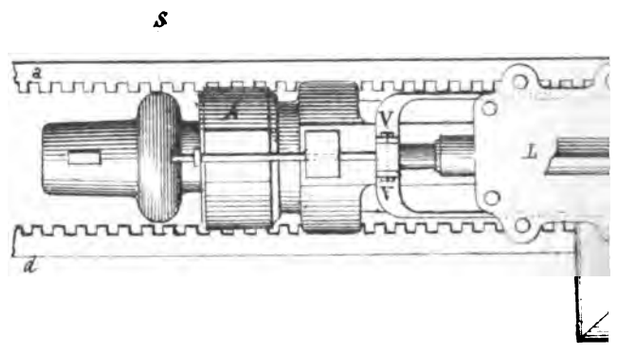




Mécanisme commandant la rotation du fleuret. Vue de face

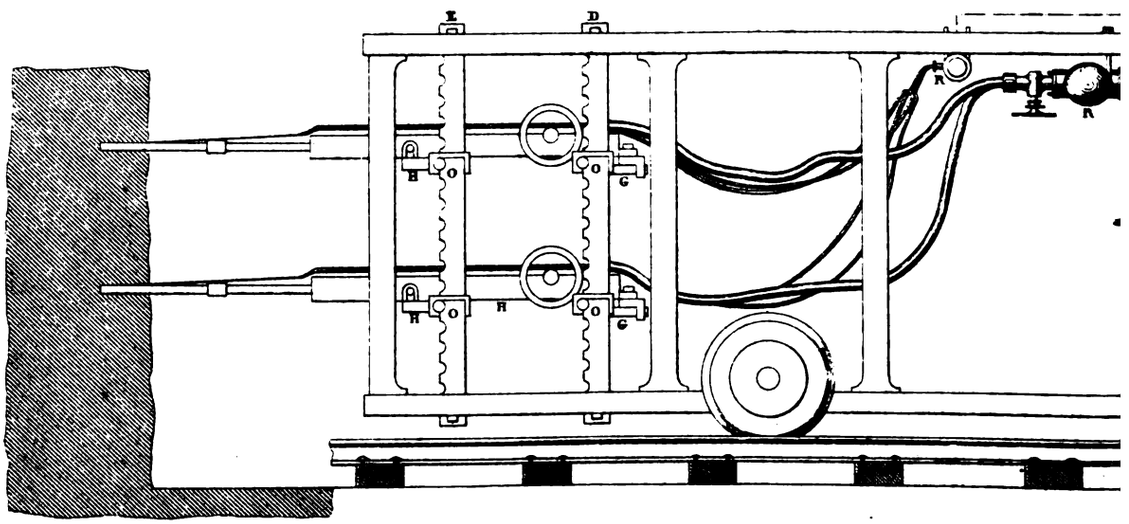
Fig. 2.





Échelle de 0,015 p m.

Fig. 3. Affut et son Ten



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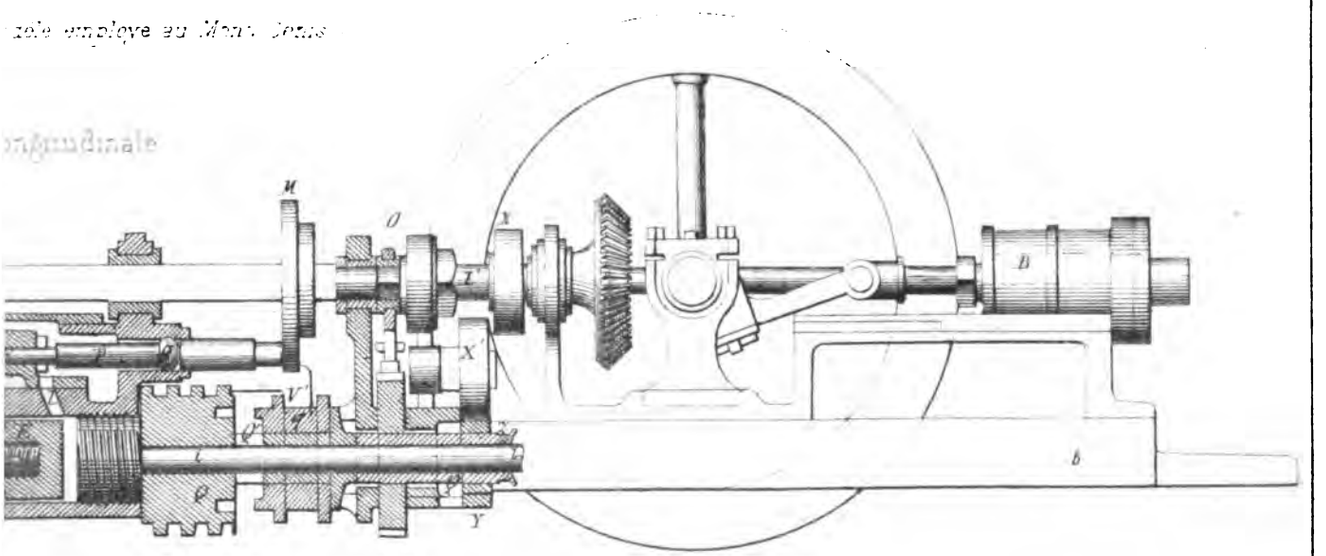

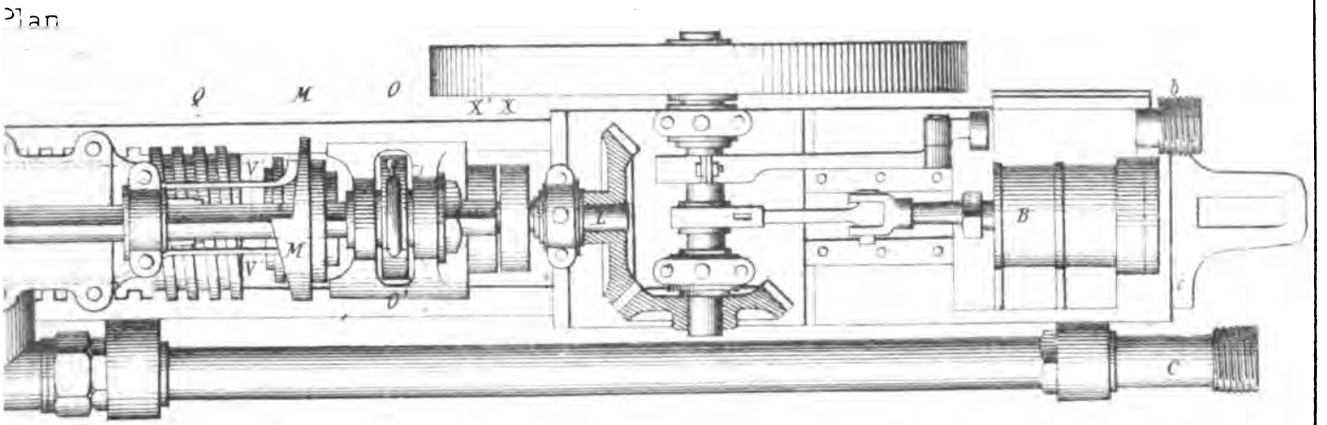

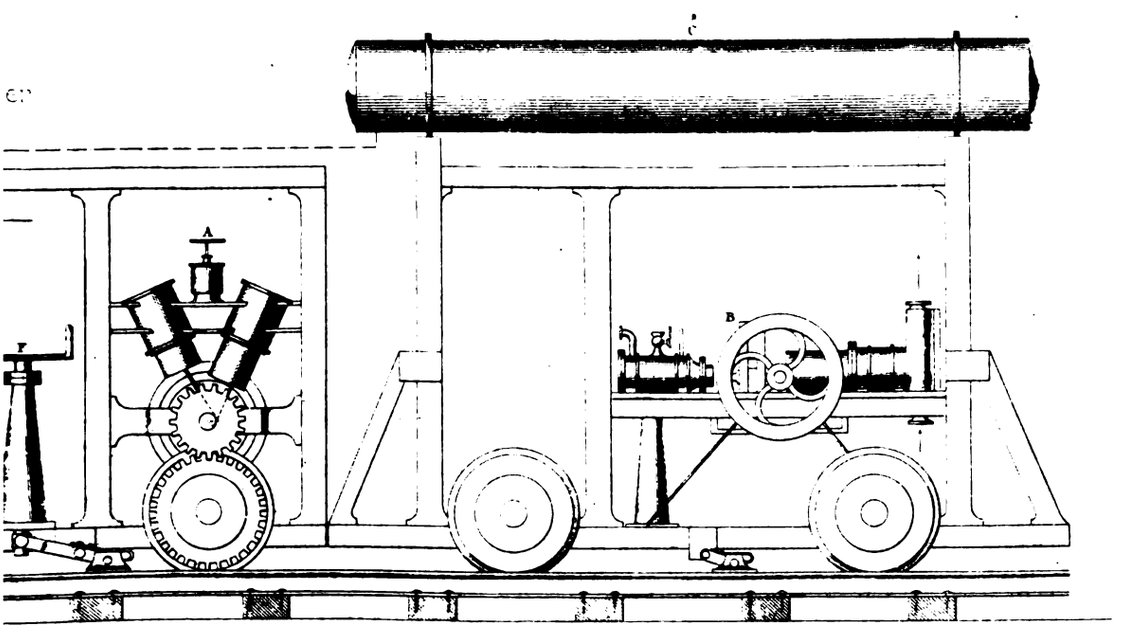

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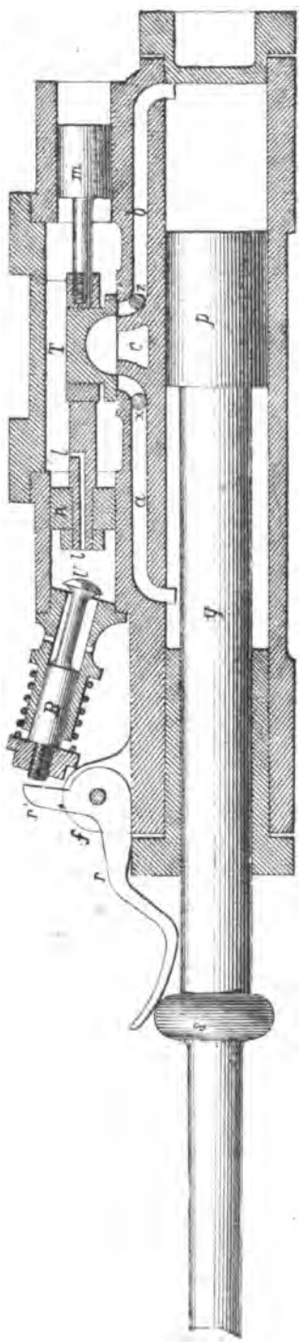

Fig. 1. Perforateur de M.M. Dubois & François.

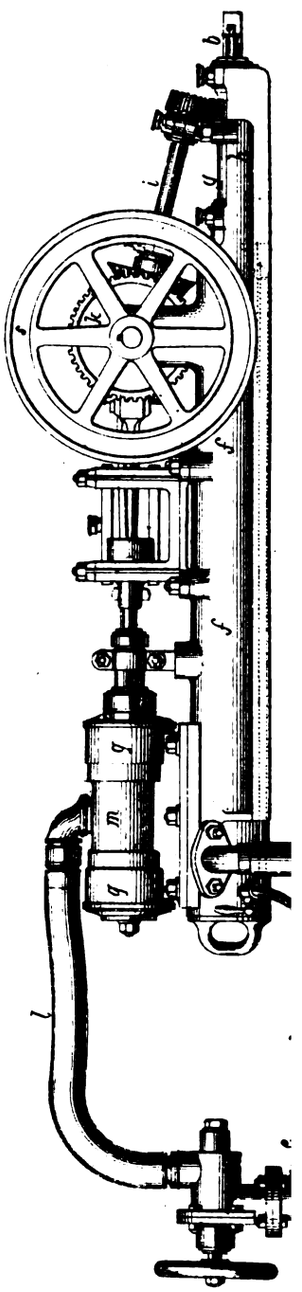

Fig. 2. Perforateur de la Roche-Tolay. *Elévation*.

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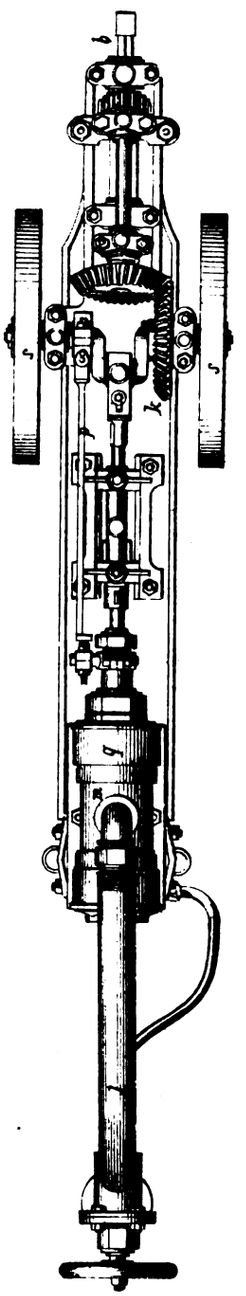

Fig. 3. *Plan.*

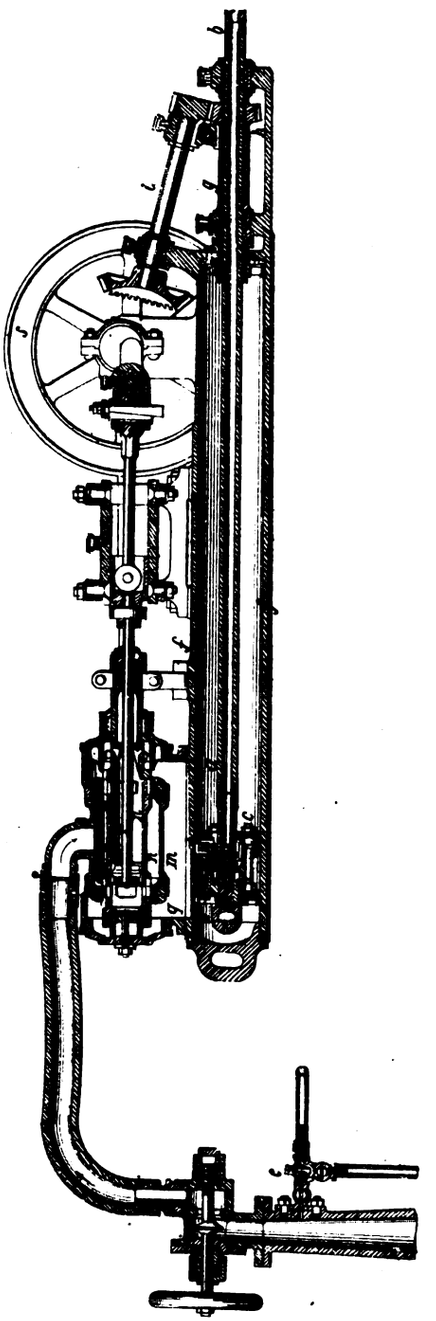

Fig. 4. *Coupe longitudinale.*

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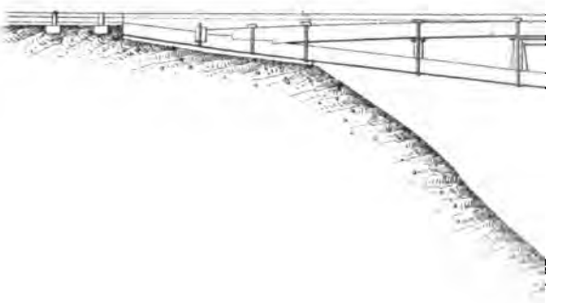
Fig. 2.



Confection d'un remblai par fou

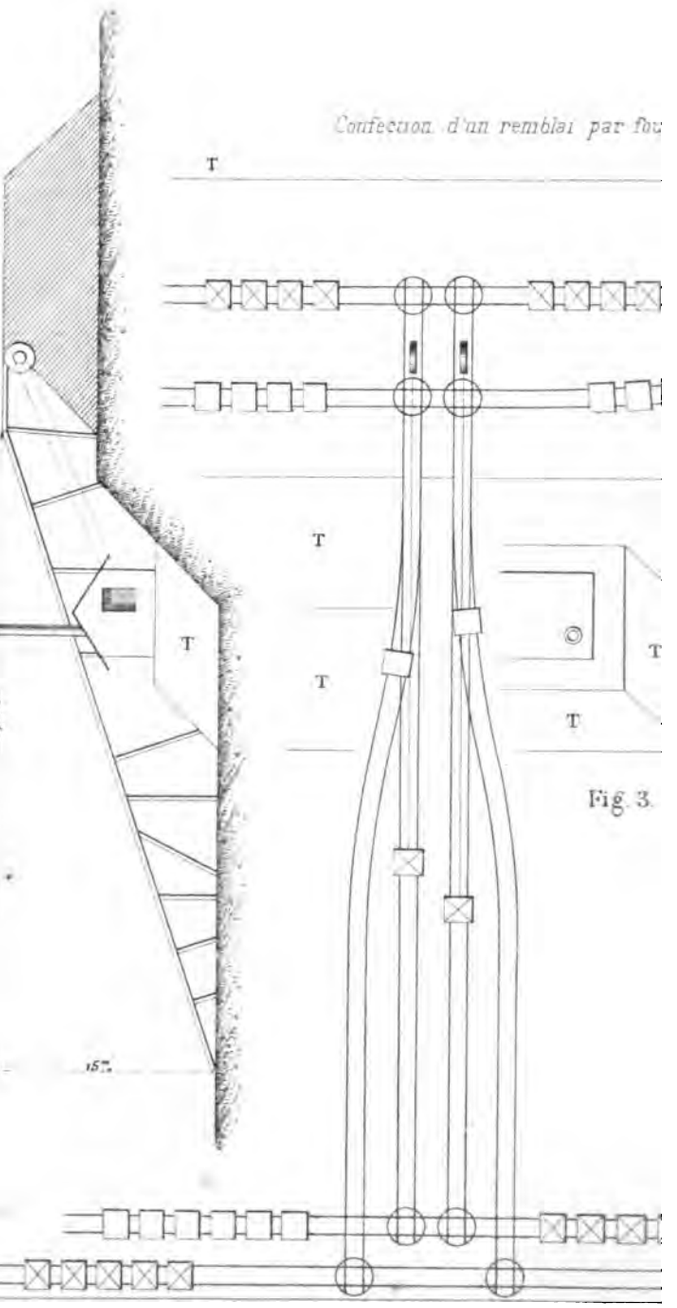


Fig. 3.

Fig. 4. Coupe en travers

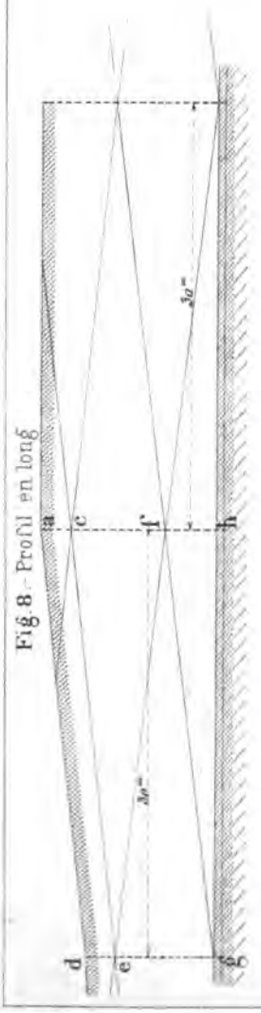


Fig. 8. - Profil en long

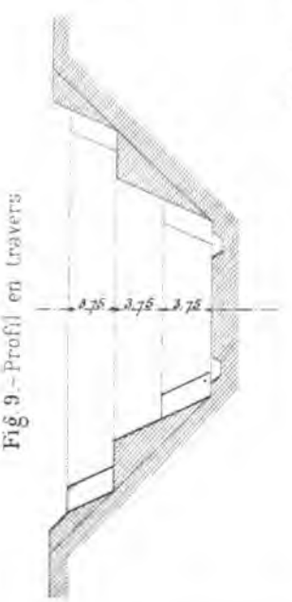


Fig. 9. - Profil en travers

Tranchée exécutée à la brouette avec retroussement des terres

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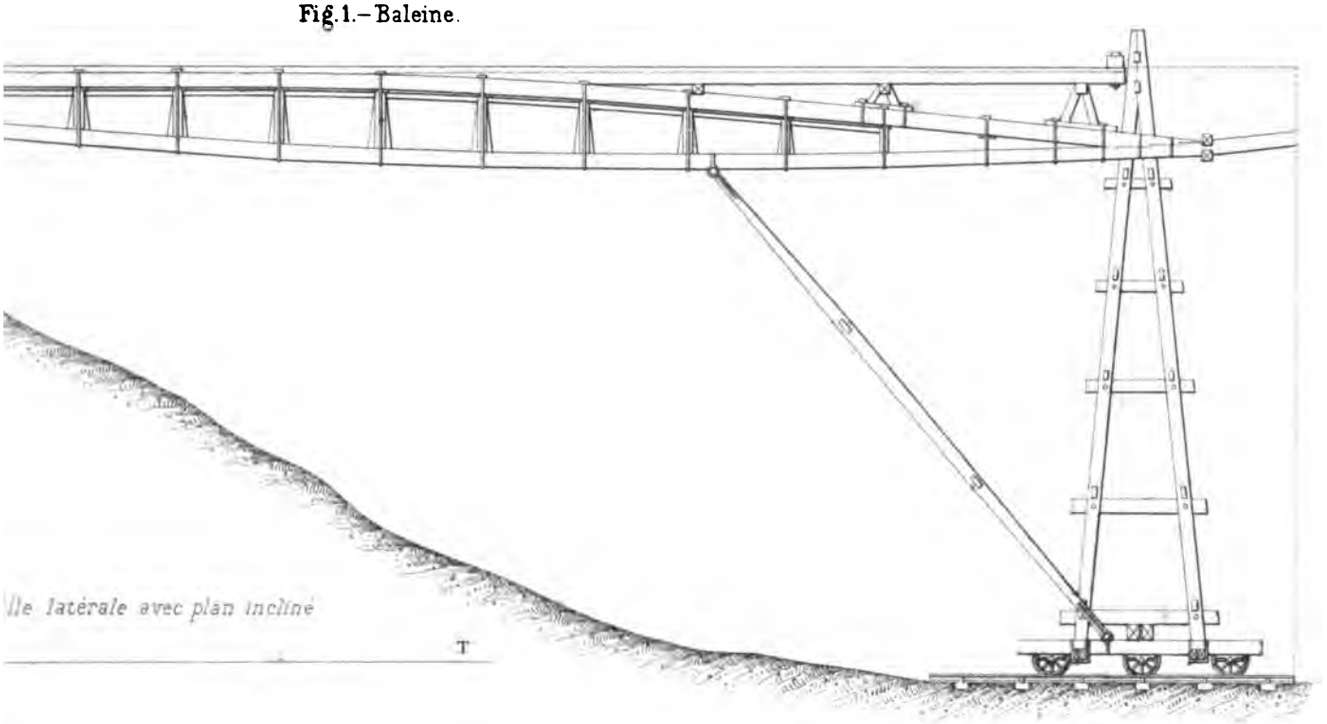
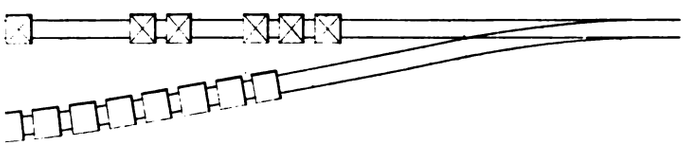
Fig. 1. – Baleine.





Exécution d'un remblai à la brouette.

T

Plan

Fig. 5. – Profil en long

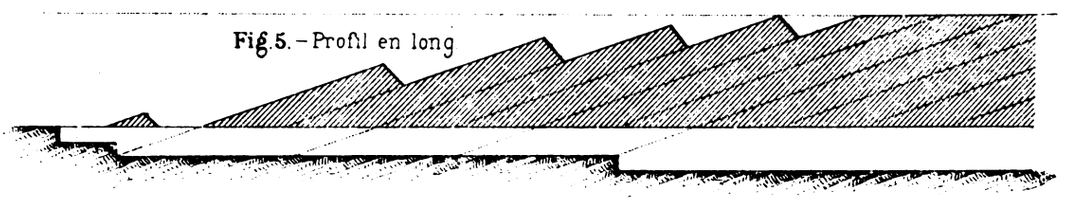


Fig. 6. – Plan

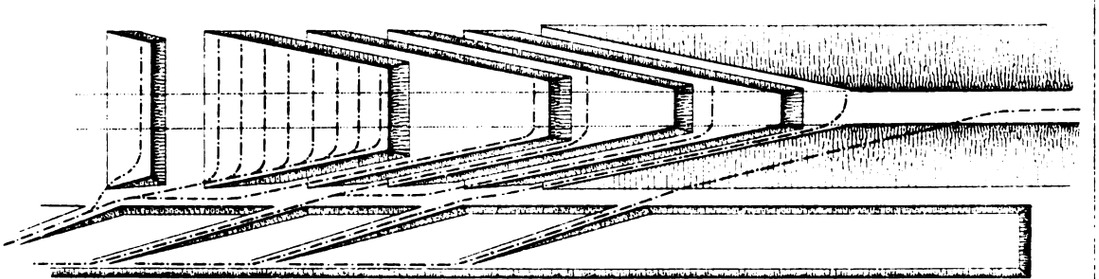
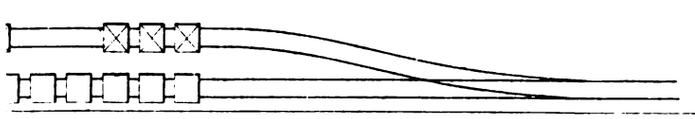


Fig. 7.
Coupe en travers



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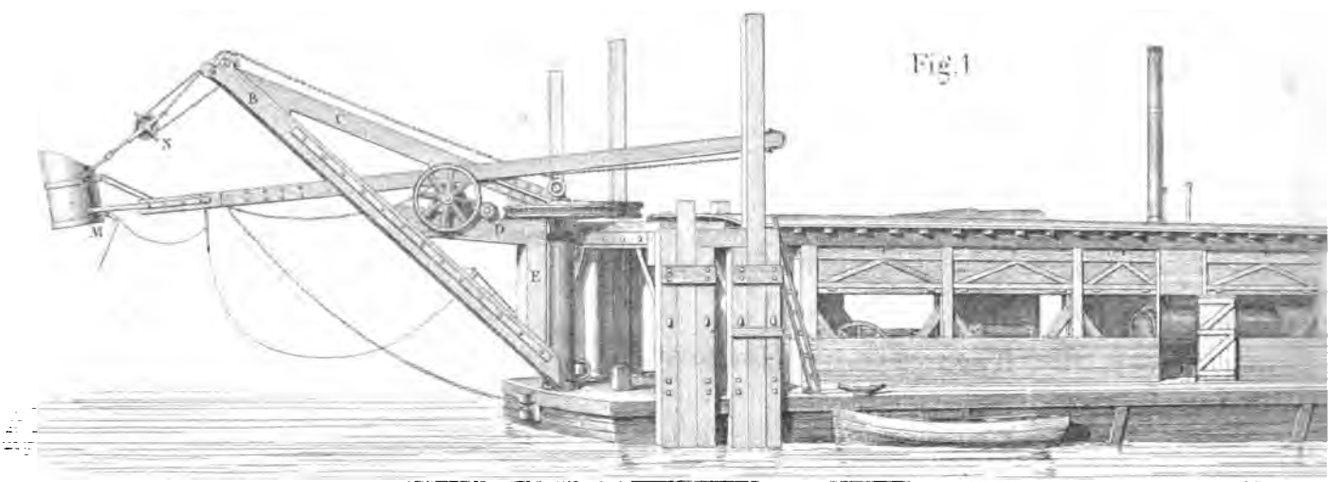
Drague à cuiller

employée à l'approfondissement du Canal de l'Illinois au Lac Michigan

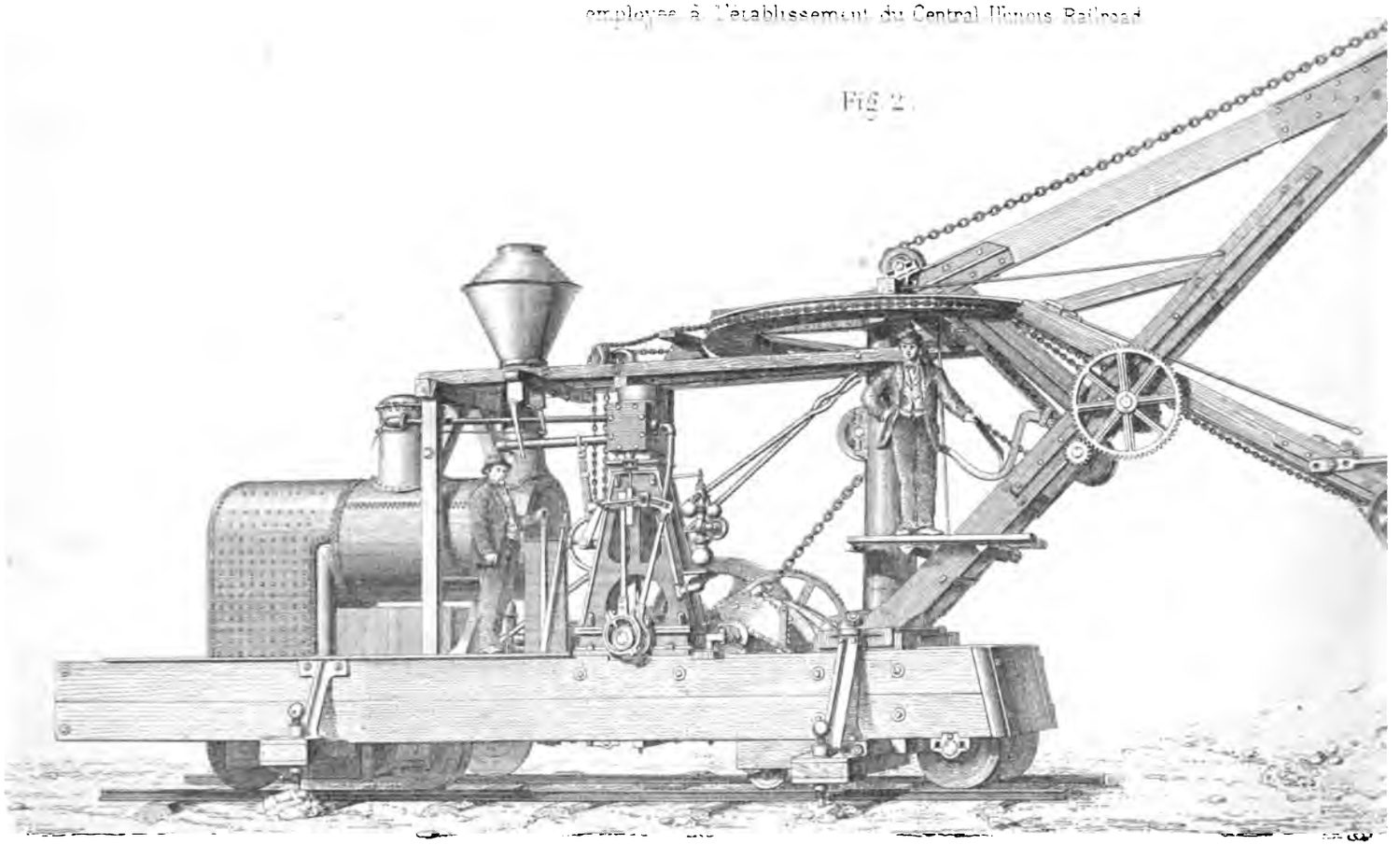
Fig. 1



Machine à déblayer à sec.

employée à l'établissement du Central Illinois Railroad

Fig. 2.



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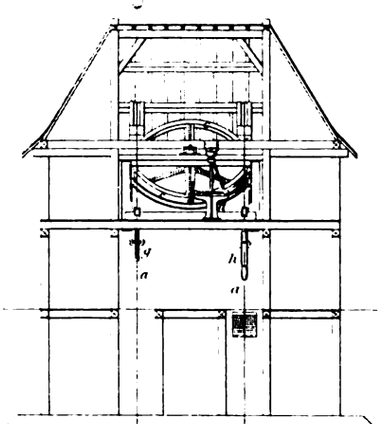
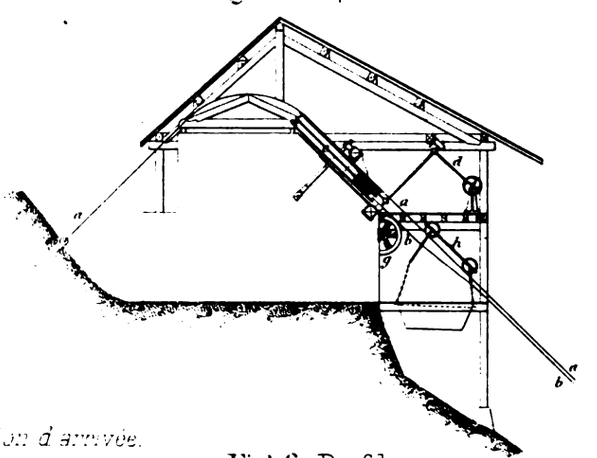
Câble aerien transporteur automoteur

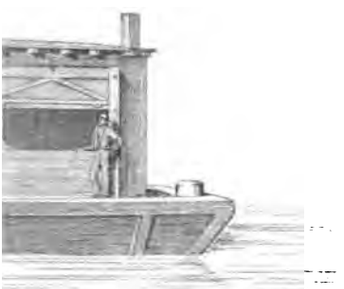
Station de départ

C Fig.3. Élévation



C Fig.4. Coupe





Station d'arrivée.

C Fig.5. Élévation.

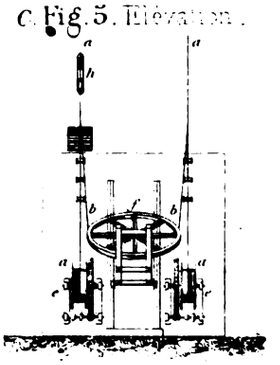
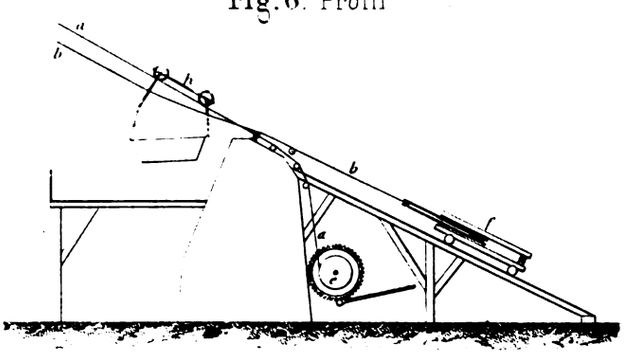


Fig.6. Profil



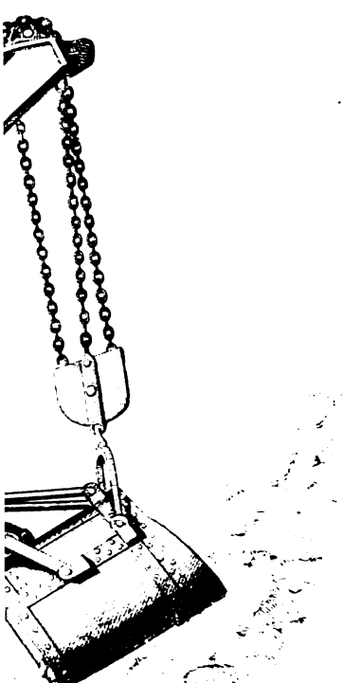
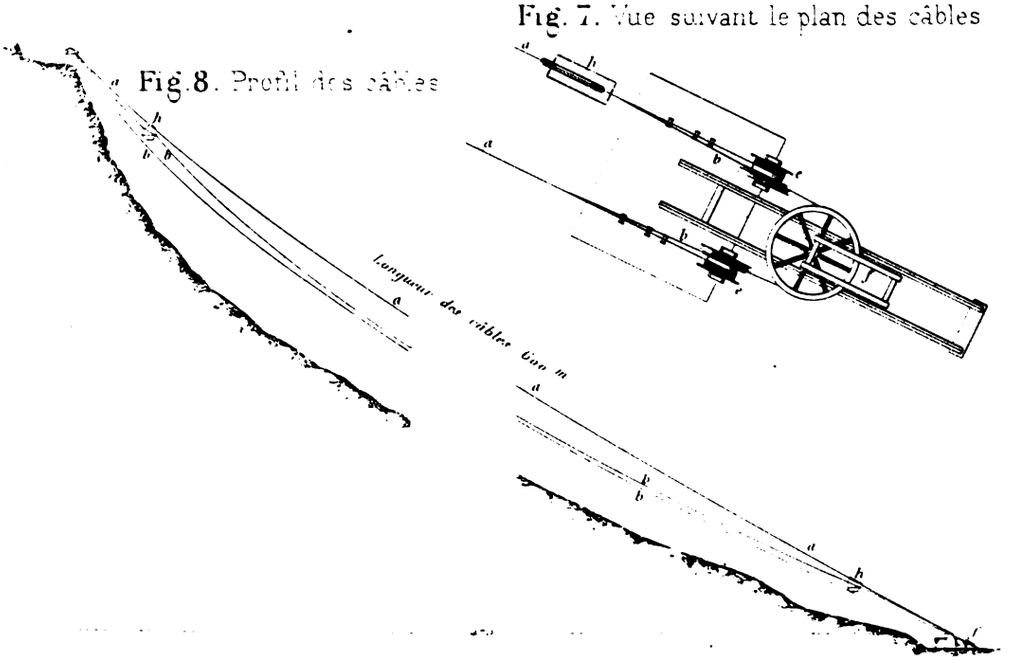


Fig.7. Vue suivant le plan des câbles

Fig.8. Profil des câbles



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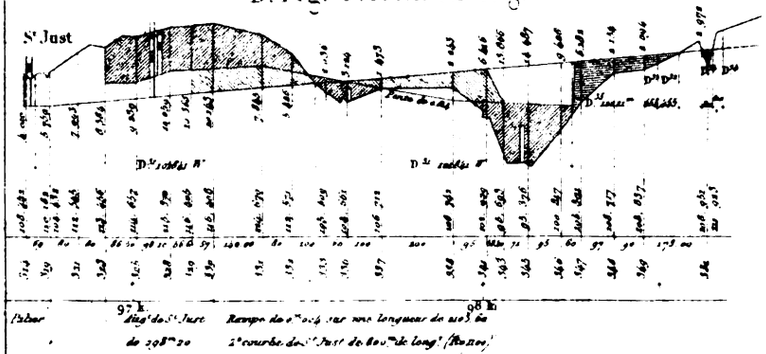
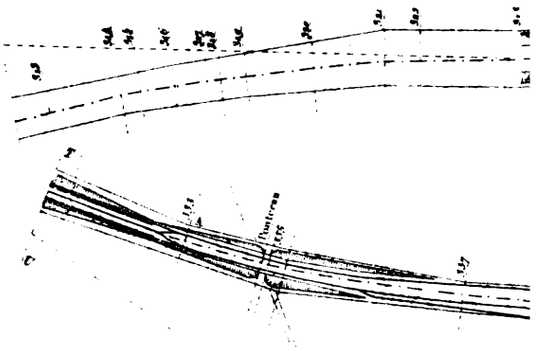
B. Fig. 4. Profil en long.





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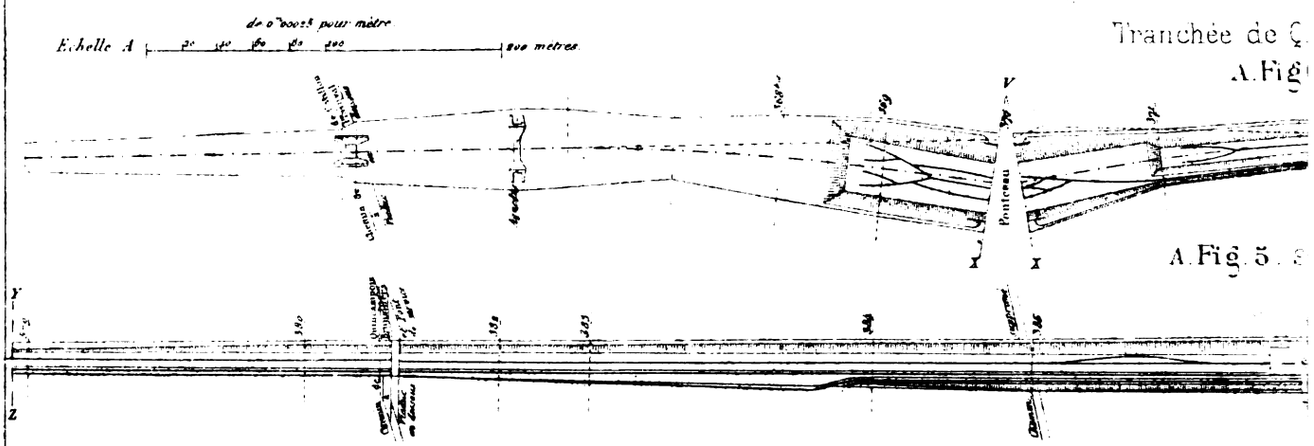
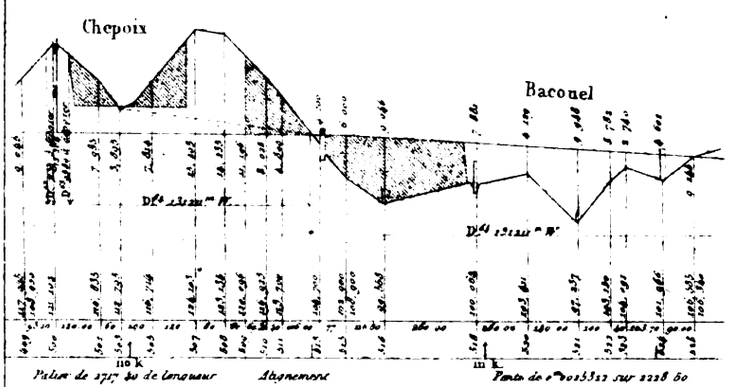
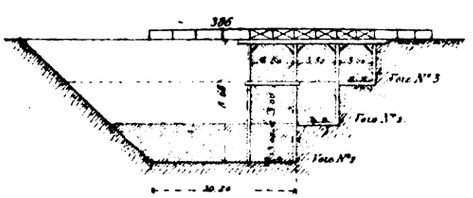


A. Fig. 5.

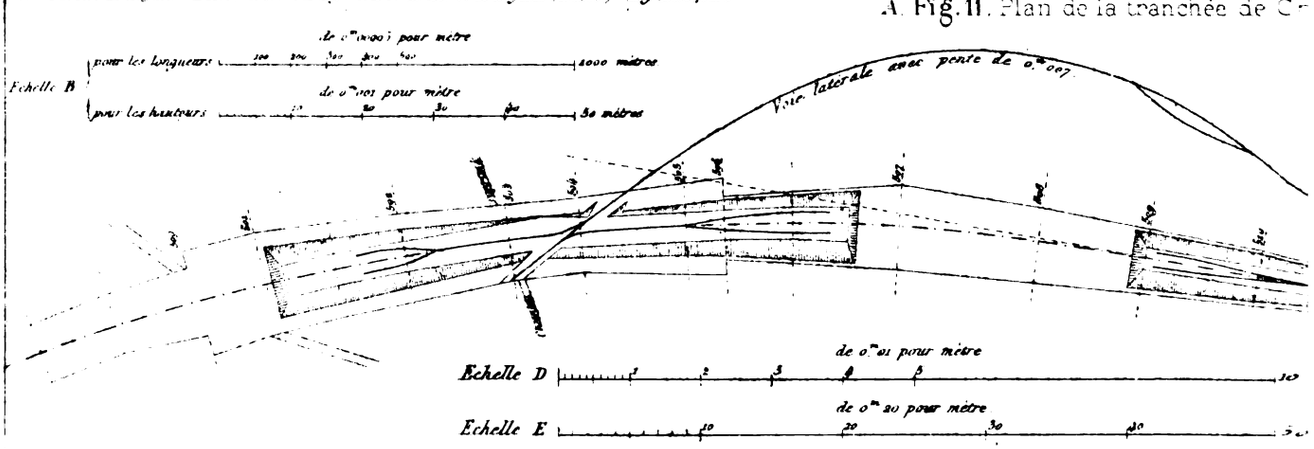
B. Fig. 12. Profil en long de la tranchée de Chepoix

C. Fig. 8. Profil en travers de la tranchée de Quincampoix





A. Fig. 11. Plan de la tranchée de C



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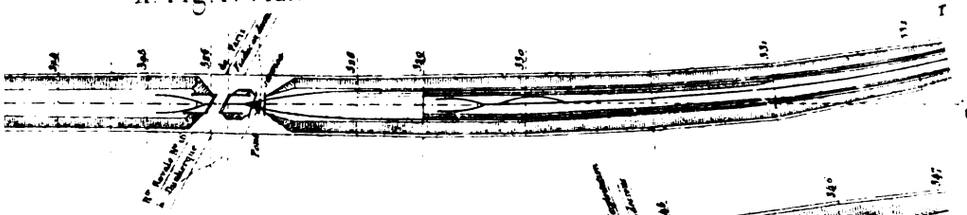
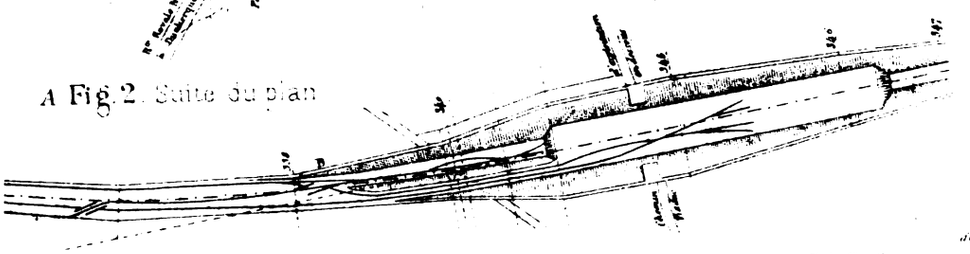
St Just

A. Fig. 1. Plan



C Fig 3. Dem. profil en travers

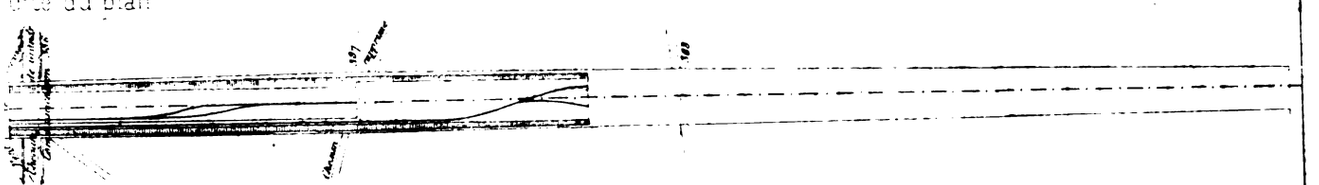
A Fig. 2. Suite du plan



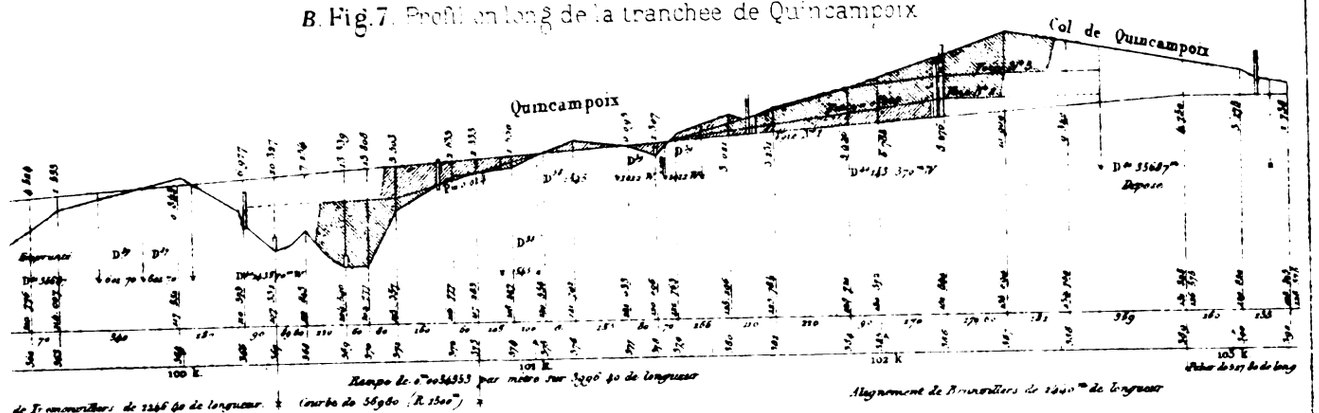
uincampoix.

6. Plan

ite du plan



B. Fig. 7. Profil en long de la tranchee de Quincampoix



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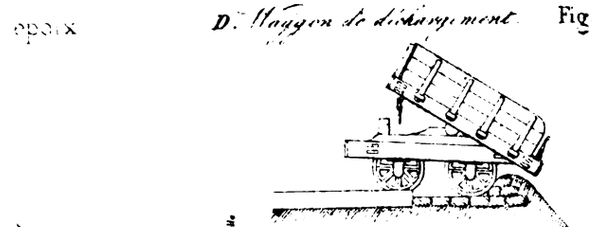
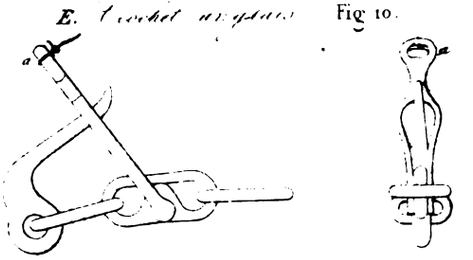
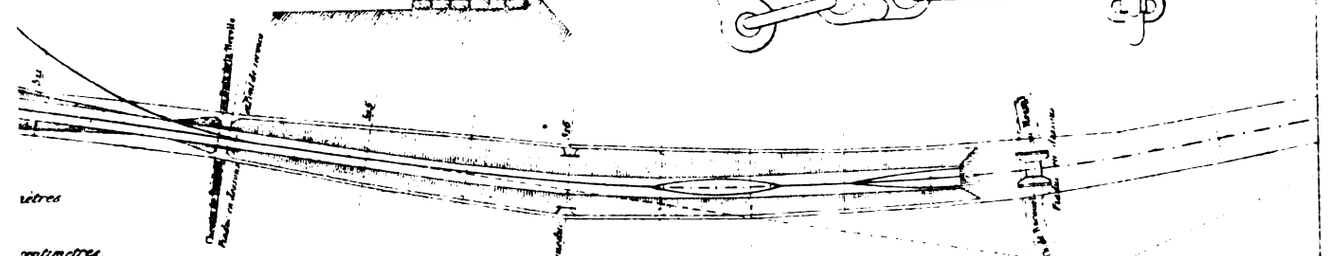
D. Wagon de déchargement. Fig 9.



E. Crochet d'attelage. Fig 10.





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Grande tranch

Fig. 4. *Execution du 1er remblai en deux parties*

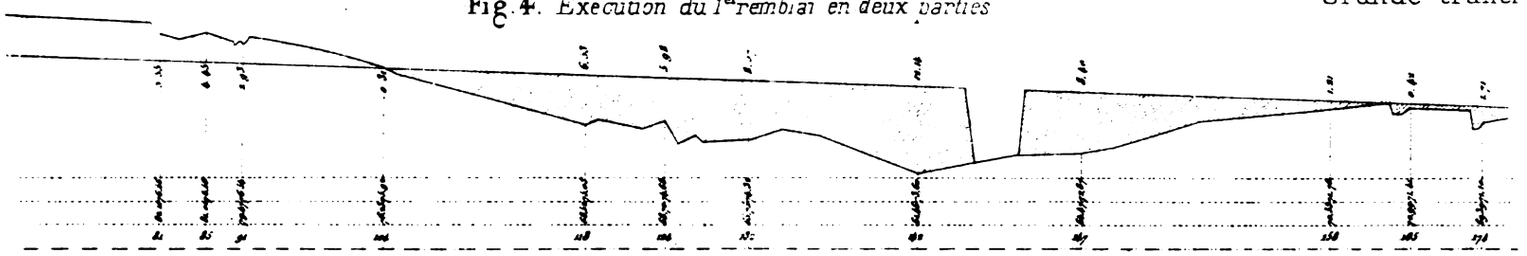


Fig. 5.

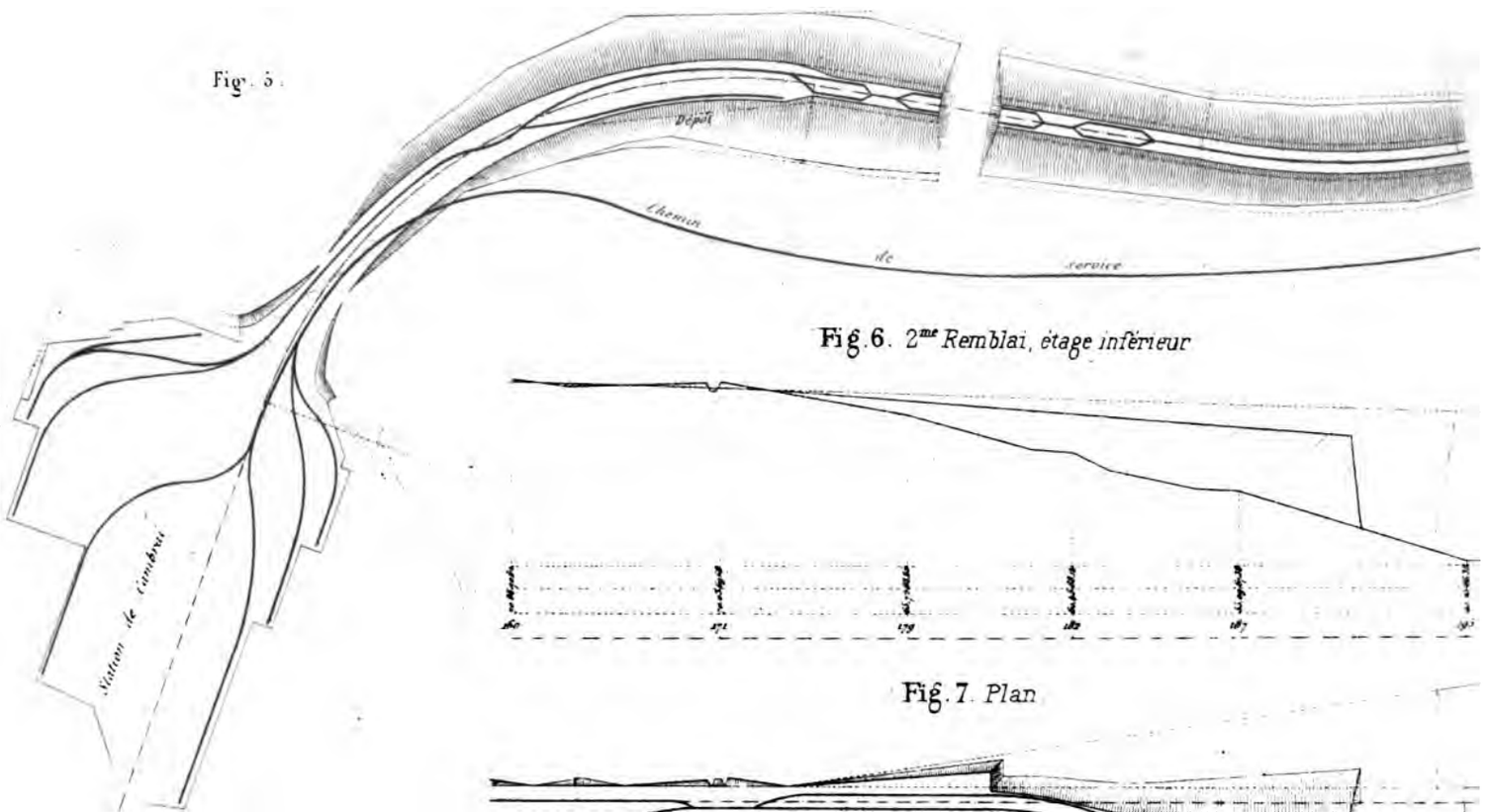
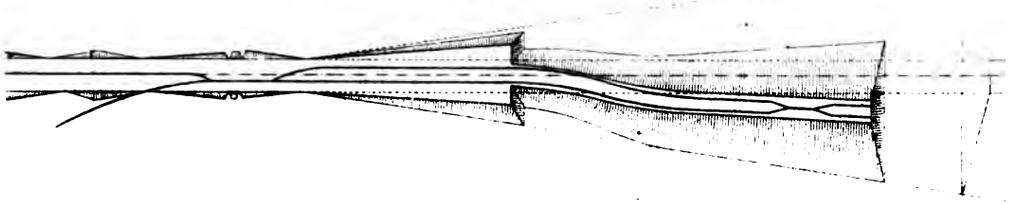


Fig. 6. *2me Remblai, étage inférieur*

Fig. 7. *Plan*



Tranchée de Ber

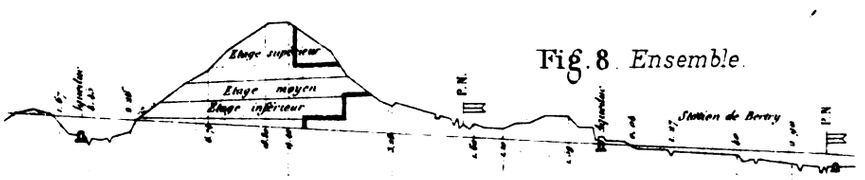


Fig. 8. *Ensemble.*

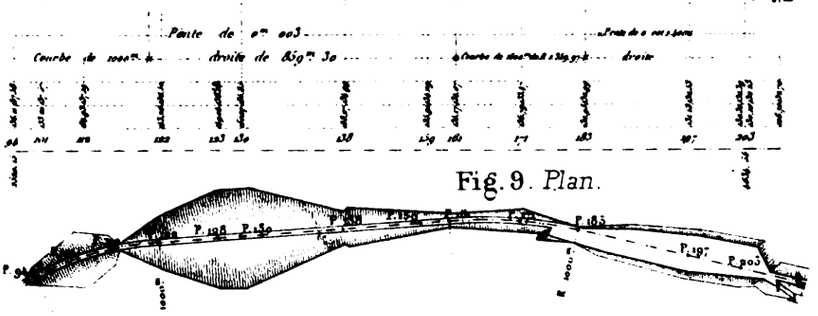


Fig. 9. *Plan.*

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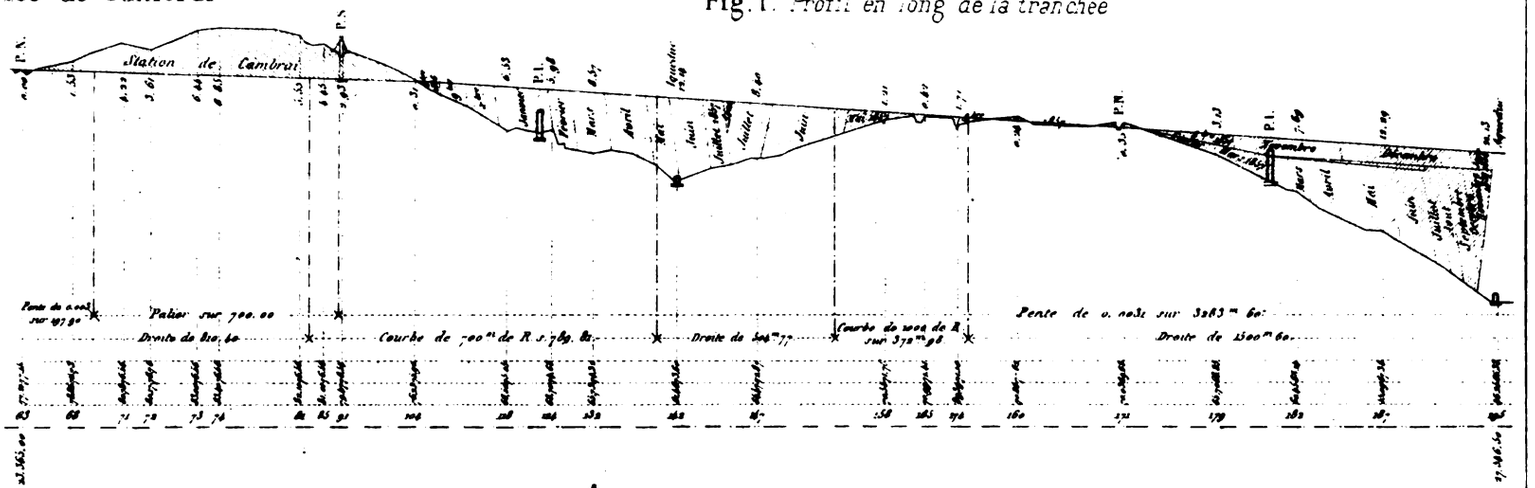
ıée de Cambrai

Fig. 1. *Profil en long de la tranchée*



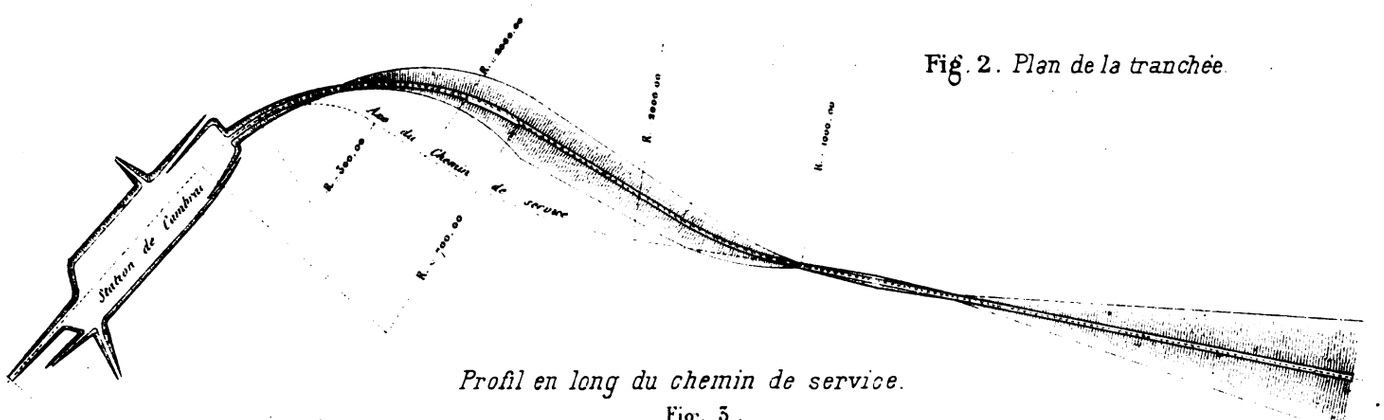
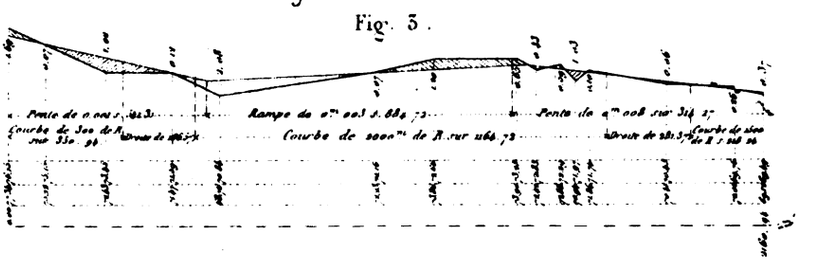


Fig. 2. *Plan de la tranchée*

Profil en long du chemin de service.

Fig. 3.



Echelles

Longueurs = $\frac{1}{10\,000}$ *pour les Fig.* 4, 5, 6 *et* 7. | *Largeurs* = $\frac{1}{2\,000}$ *pour les Fig.* 5 *et* 7.

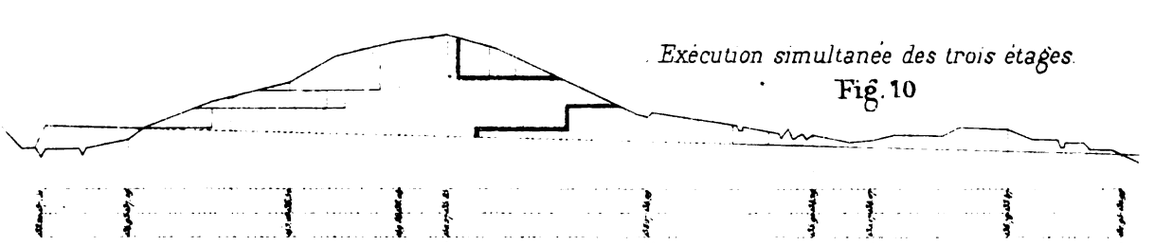
Longueurs = $\frac{1}{20\,000}$ *pour les Fig.* 1 2 *et* 3. | *Largeurs* = $\frac{1}{1\,000}$ *pour la Fig.* 2

Hauteurs = $\frac{1}{1\,000}$ *pour les Fig.* 1 3 4 *et* 6

try

Exécution simultanée des trois étages.

Fig. 10



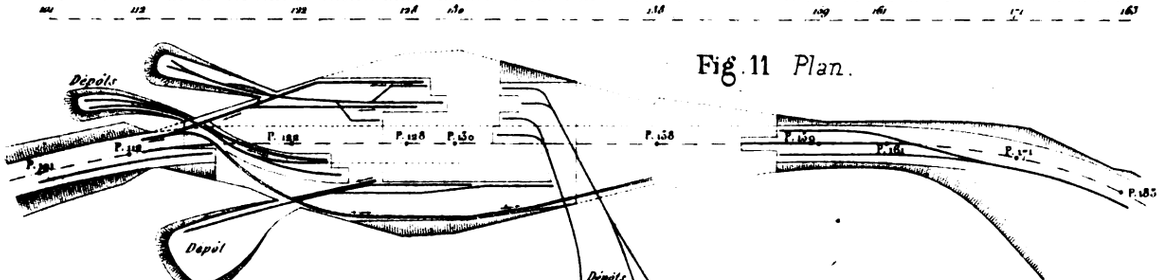


Fig. 11 *Plan.*

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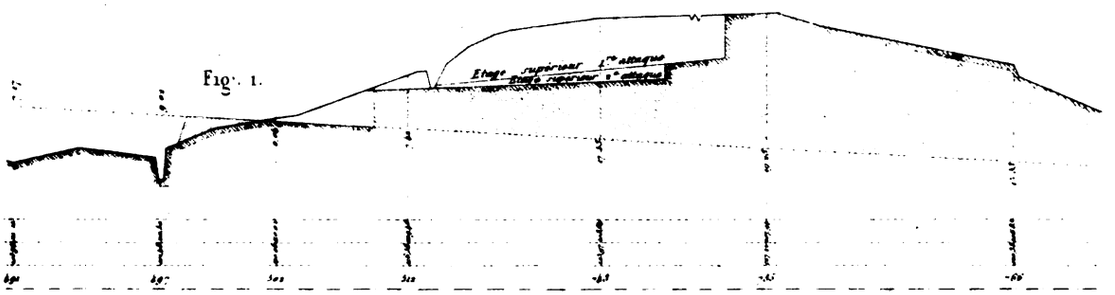
Tête amont, étage supérieur

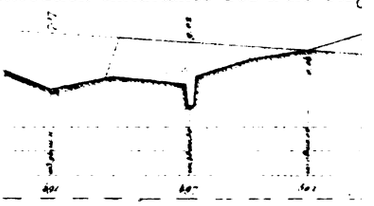
Fig. 1.



Tranchée de Fontaine-au-Pire.

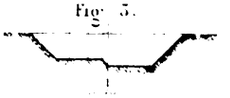
Tête amont

Exécution simultanée des trois étag

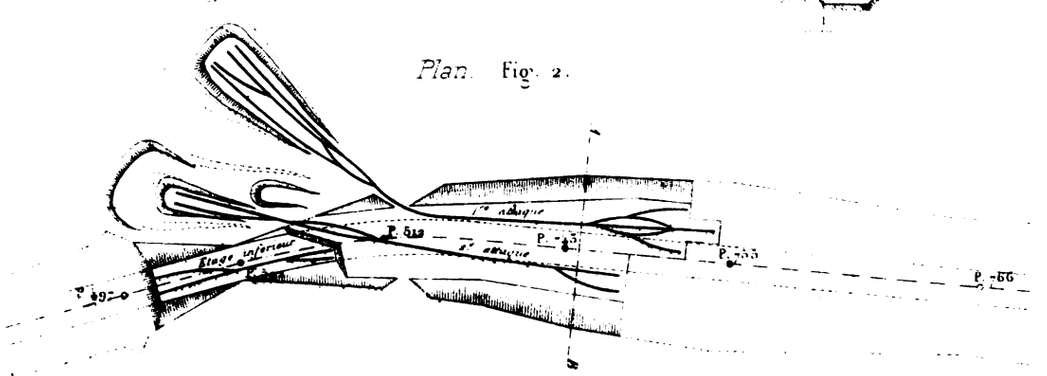


Profil en travers suivant AB du plan

Fig. 5.



Plan. Fig. 2.



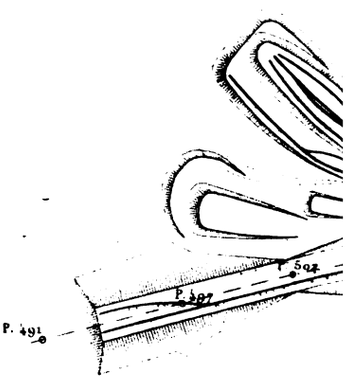
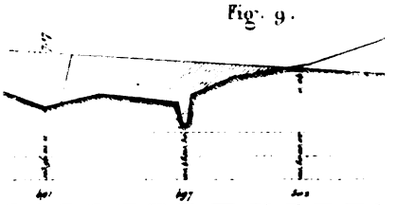


Fig. 9.



Tête aval étage unique

Fig. 11.

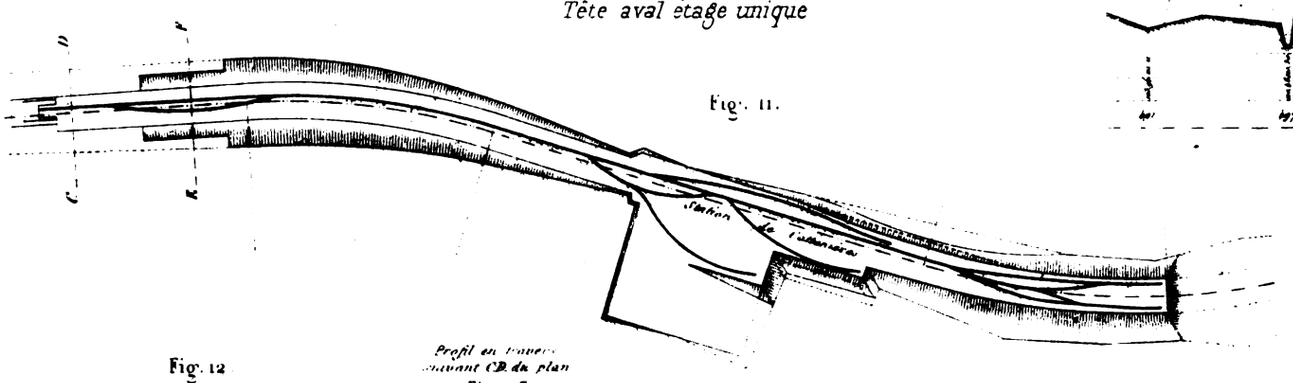
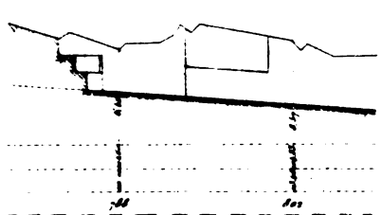


Fig. 12

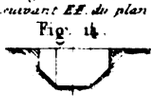


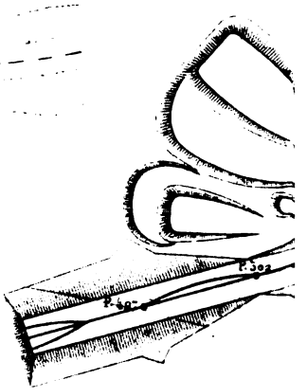
Profil en travers suivant CD du plan

Fig. 13

Profil en travers suivant EF du plan

Fig. 14.





Echelles

Longueurs = $\frac{1}{10000}$ pour les Fig. 1 et 4, 5, 9, 10, 11 et 12

Largeurs = $\frac{1}{5000}$ pour les Fig. 2, 3, 5, 6, 7, 8, 10, 11, 13 et 14

Hauteurs = $\frac{1}{1000}$ pour les Fig. 1, 3, 4, 6, 7, 8, 9, 12, 13 et 14

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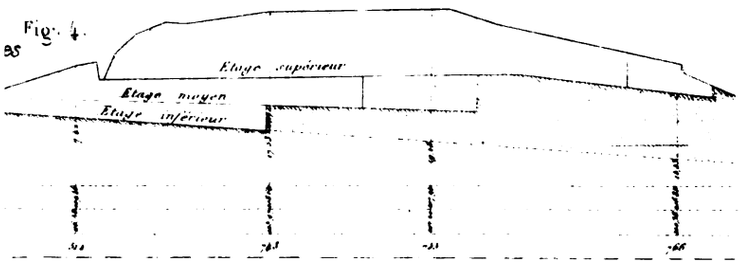
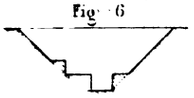
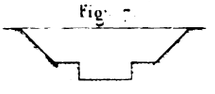
Fig. 4.



Profil en travers suivant GH du plan
Fig. 6



Profil en travers suivant IK du plan
Fig. 7



Profil en travers suivant LM du plan
Fig. 8

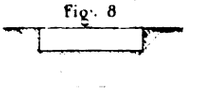
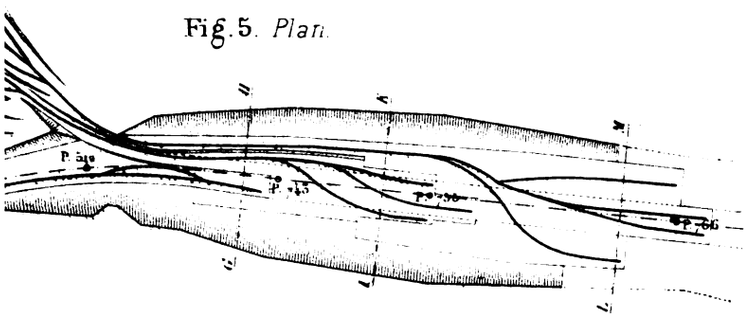
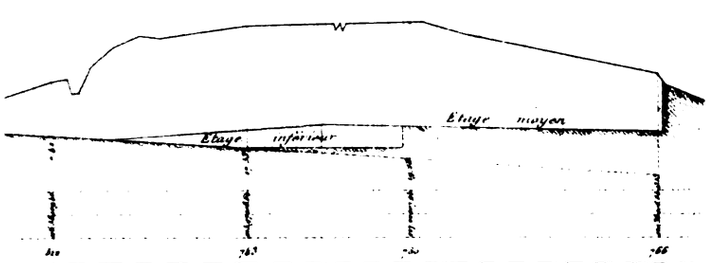


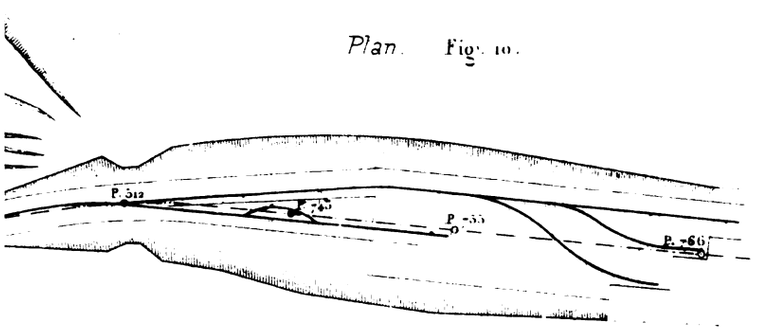
Fig. 5. *Plan.*



Etages moyen et inférieur



Plan. Fig. 10.



Tranchée de Fontaine-au-Pire
Ensemble Fig. 15.

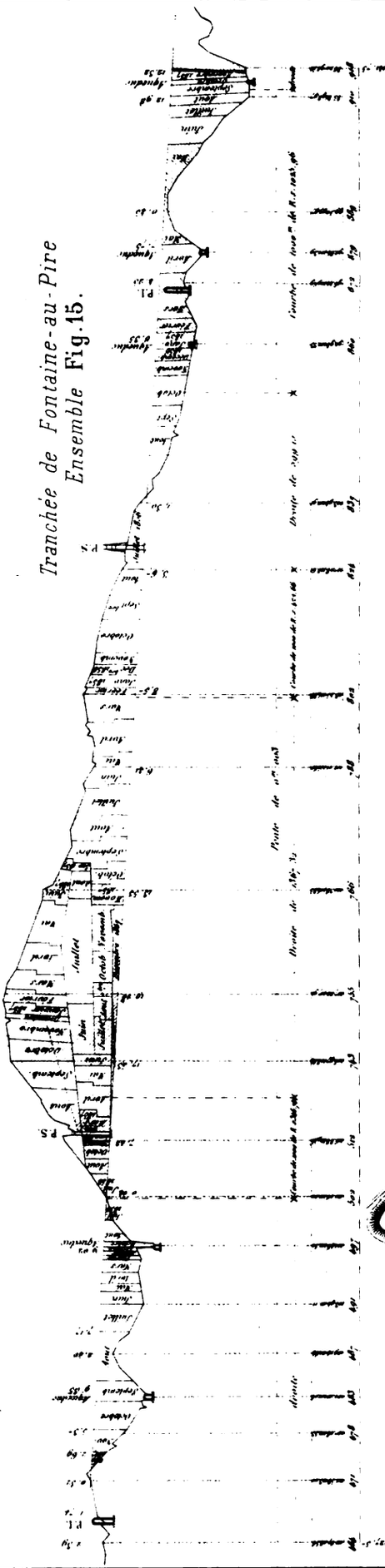
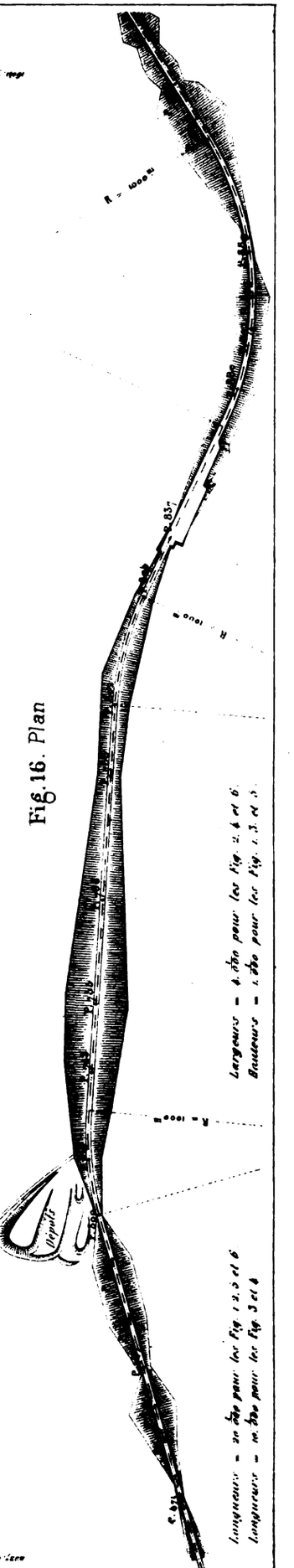


Fig. 16. *Plan*



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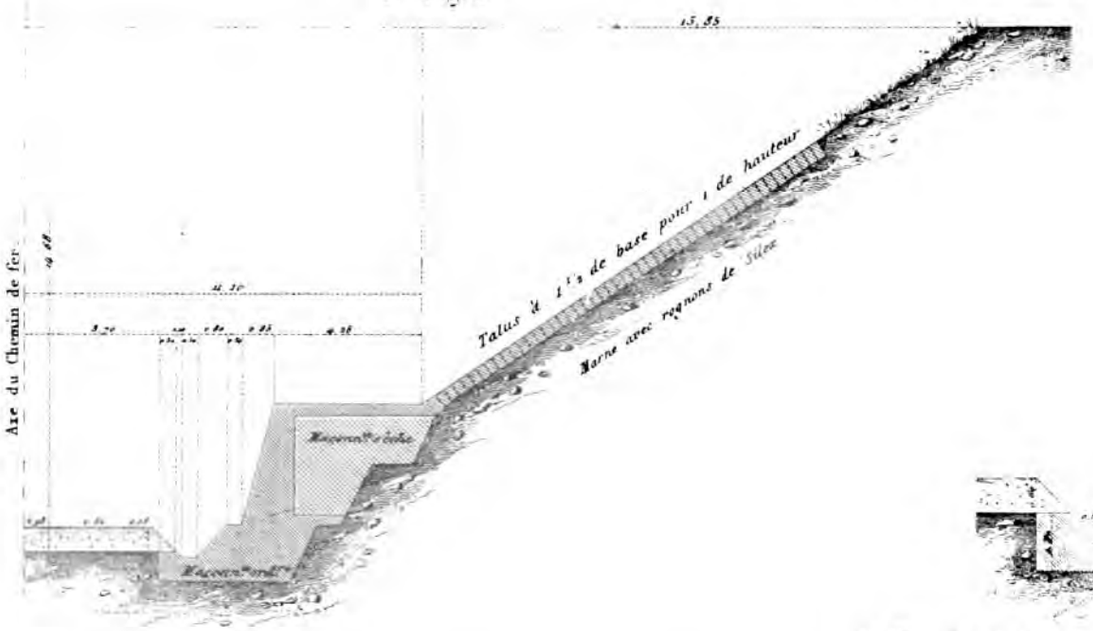
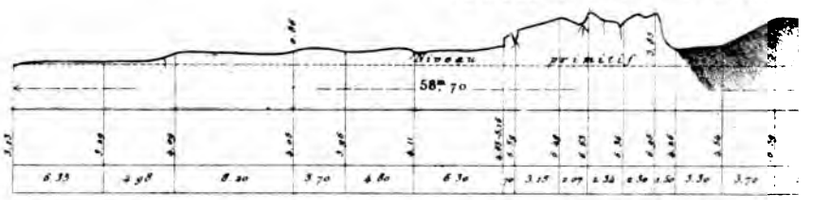
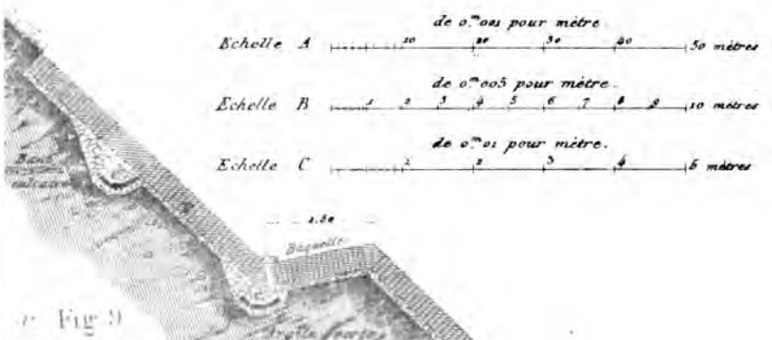
B. Fig. 3

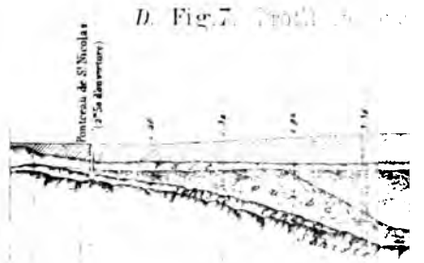


D. Fig. 8



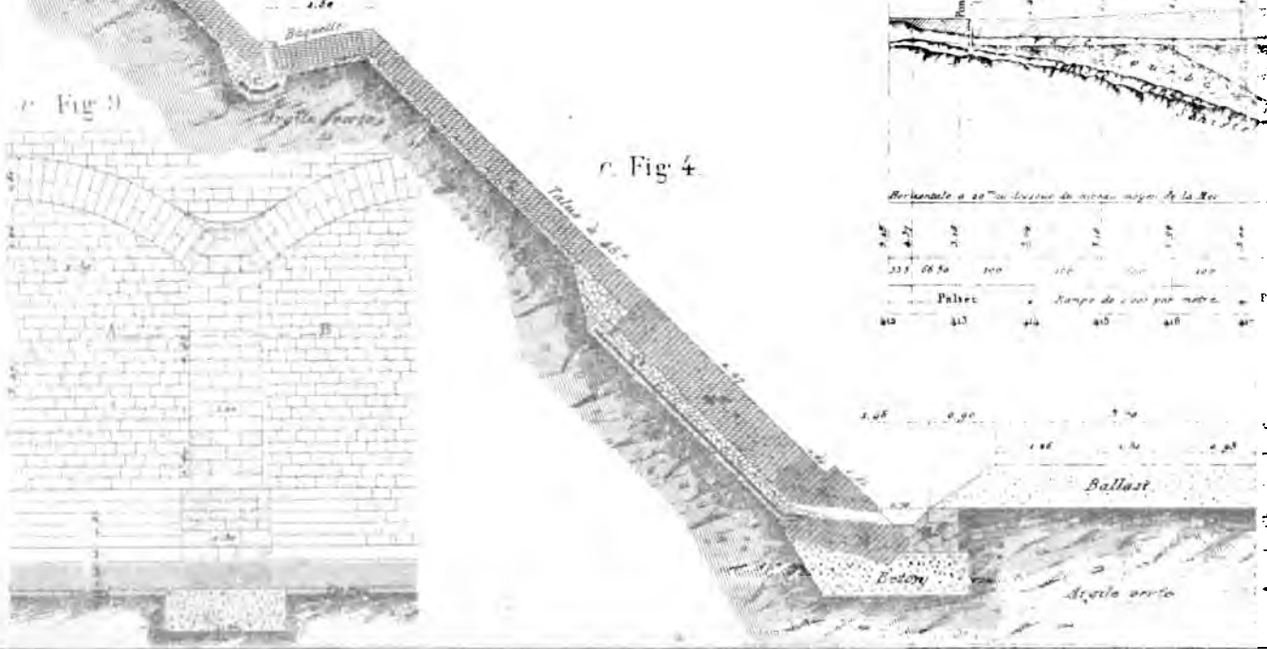


D. Fig. 7.



C. Fig. 9

C. Fig. 4



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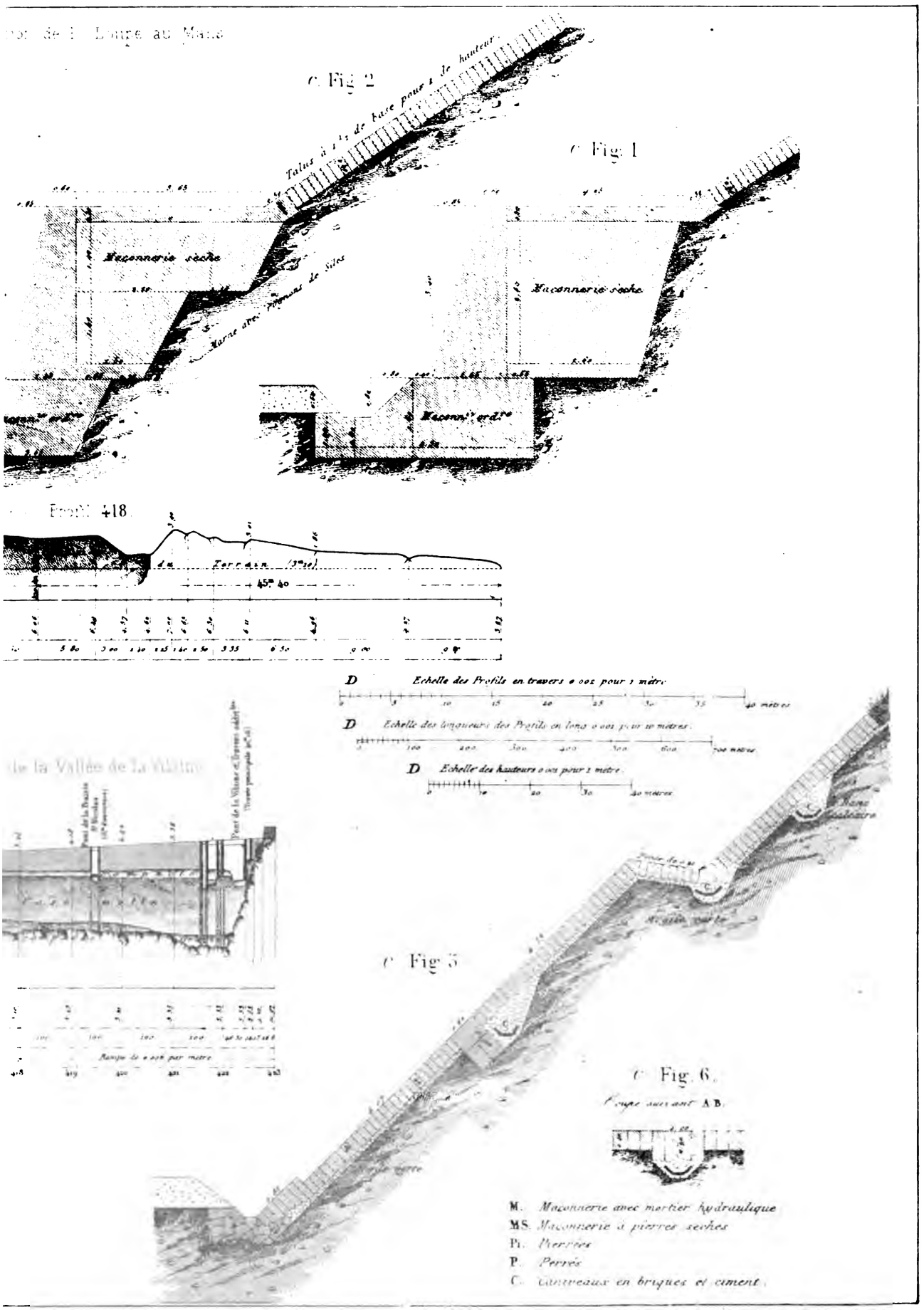

Quai des Augustins, Paris
Imp.me par A. Broise & Courtier, Paris.

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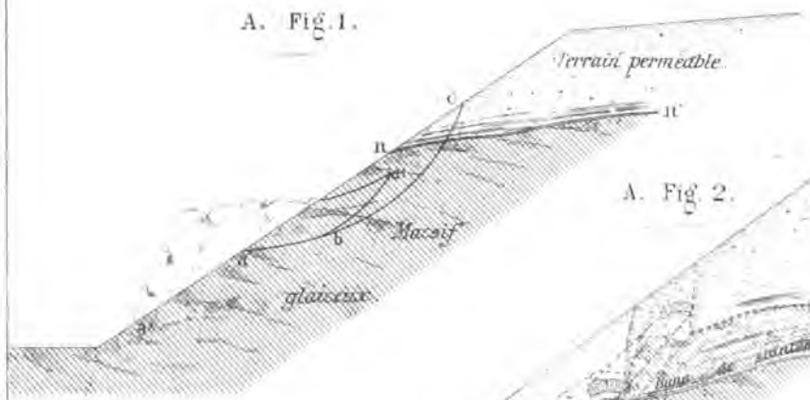
CONSOLIDATION
Procédé de

A. Fig. 1.



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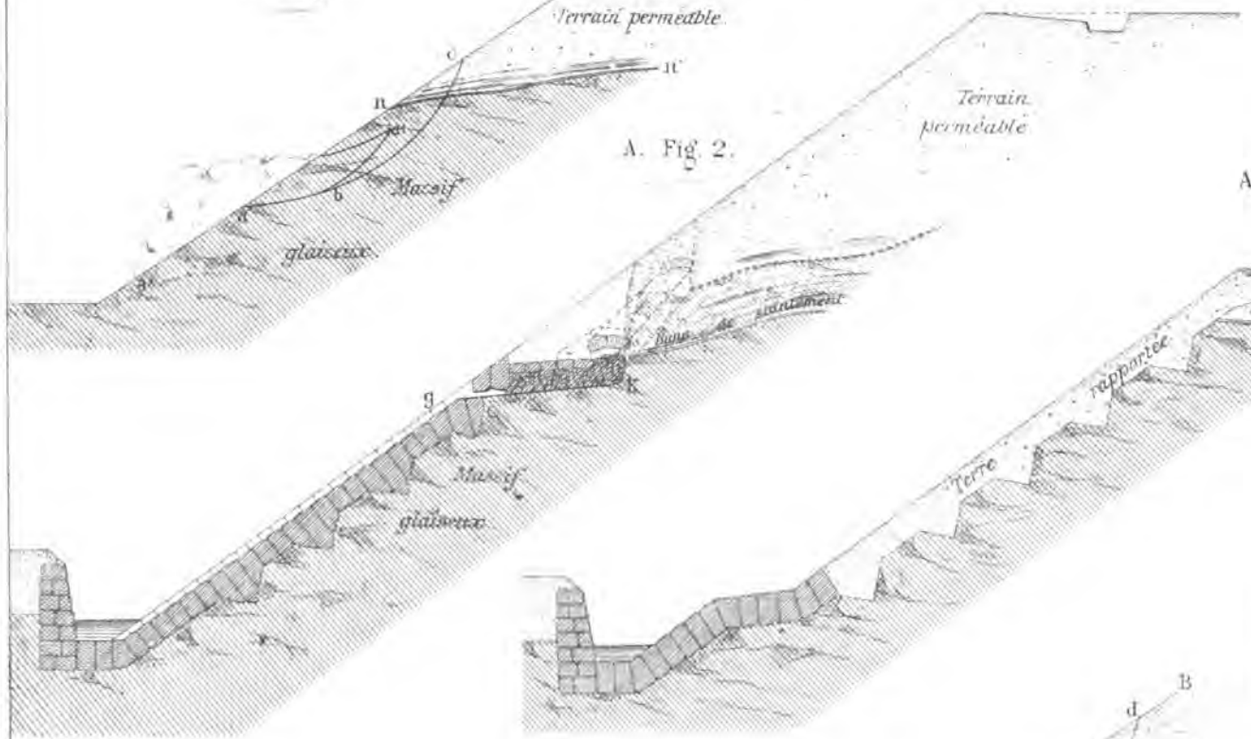
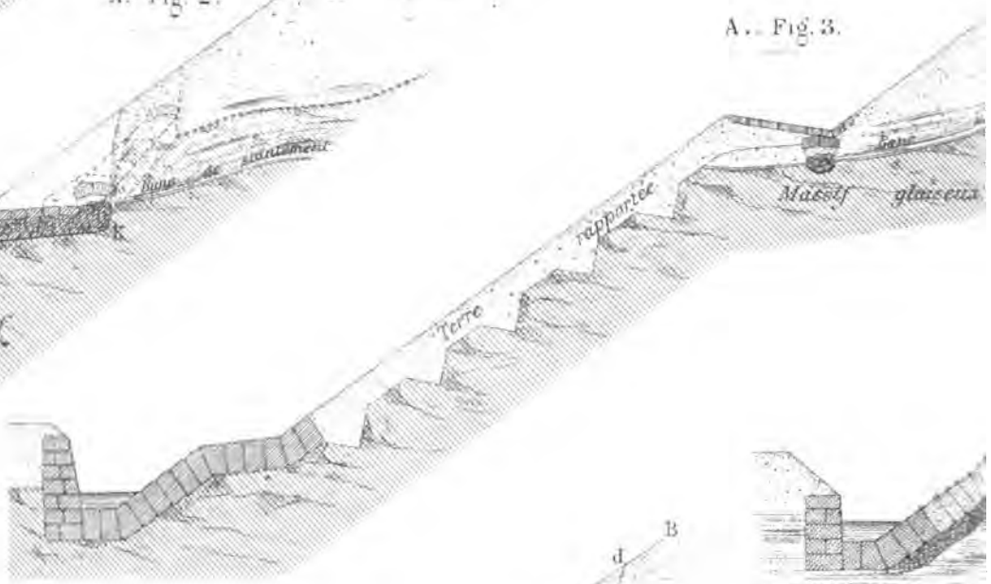
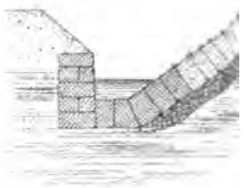
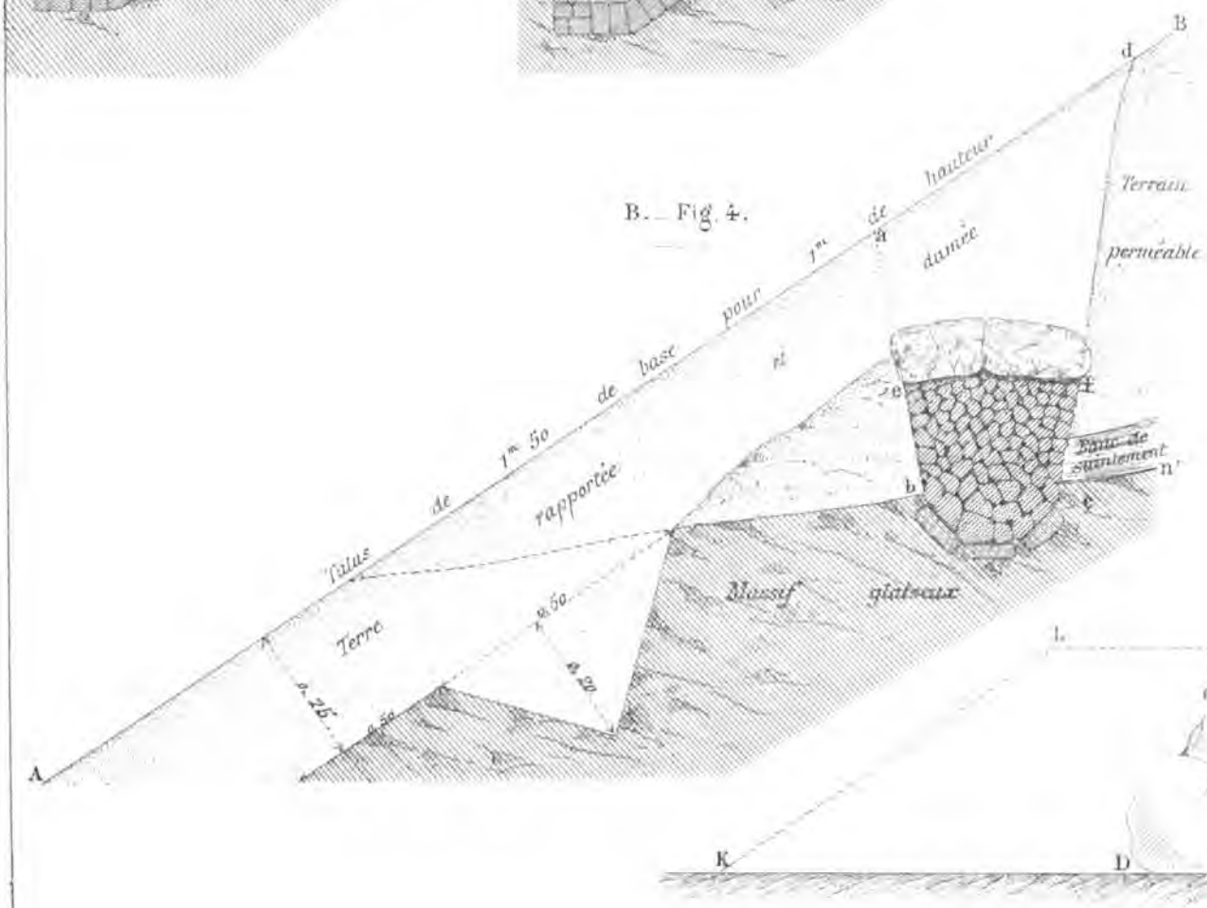


A. Fig. 3.





B. Fig. 4.



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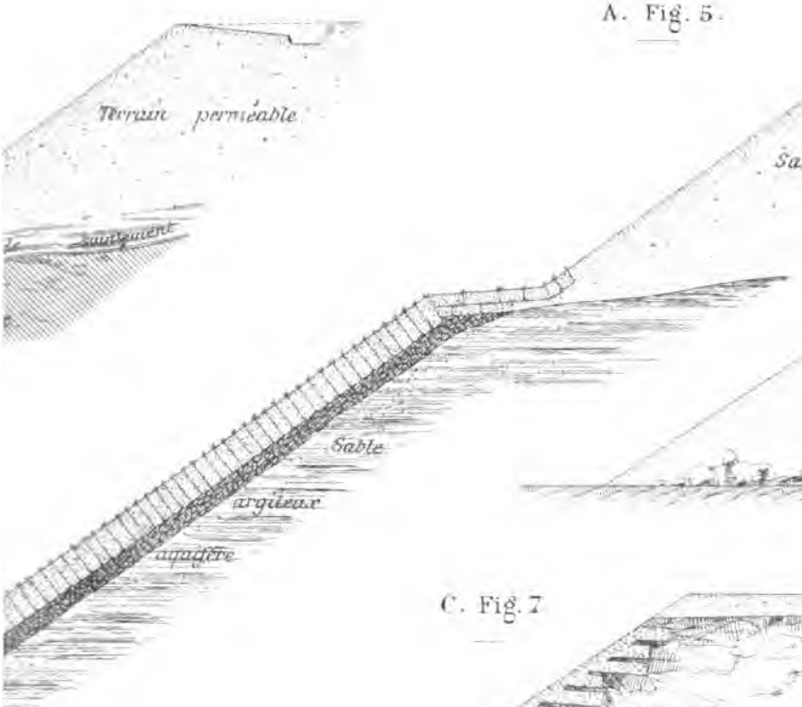
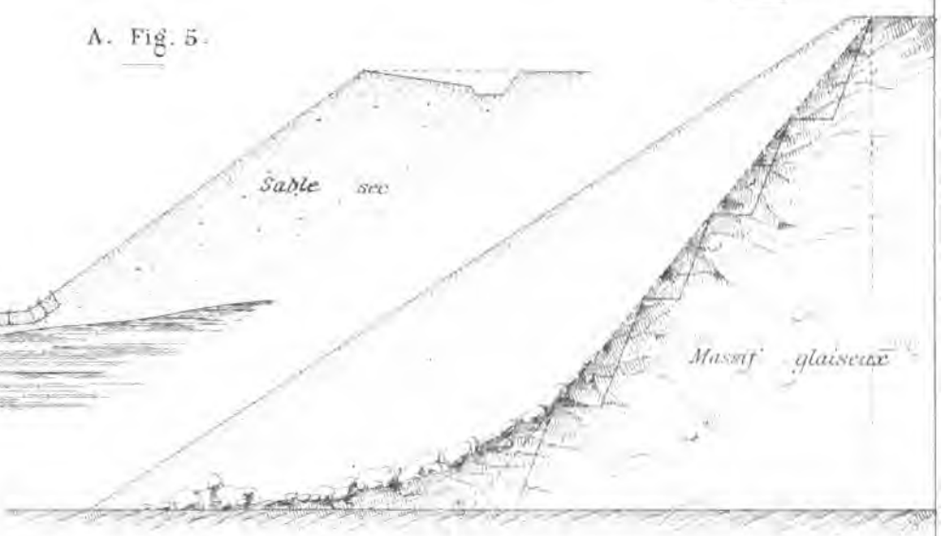
DES TALUS.

SAZILLY.

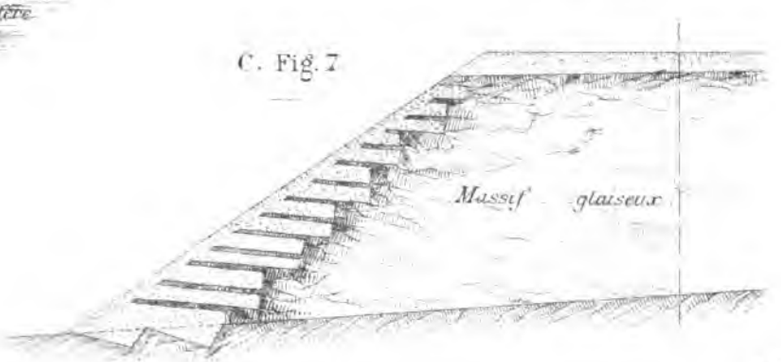
A. Fig. 5.



B. Fig. 6.



C. Fig. 7.



A. Fig. 8.

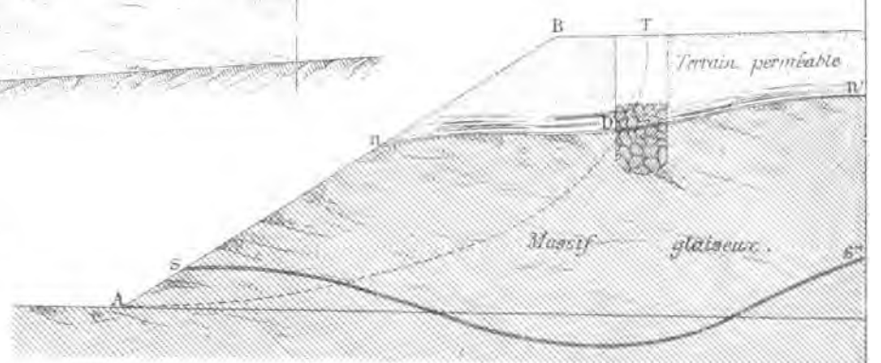
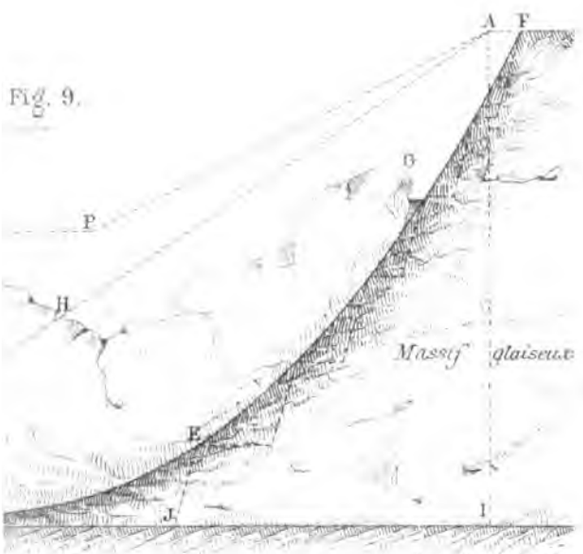


Fig. 9.



9, Quai des Augustins, Paris.

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Fig. 1.
Rigole de suintement dans un talus à 45°

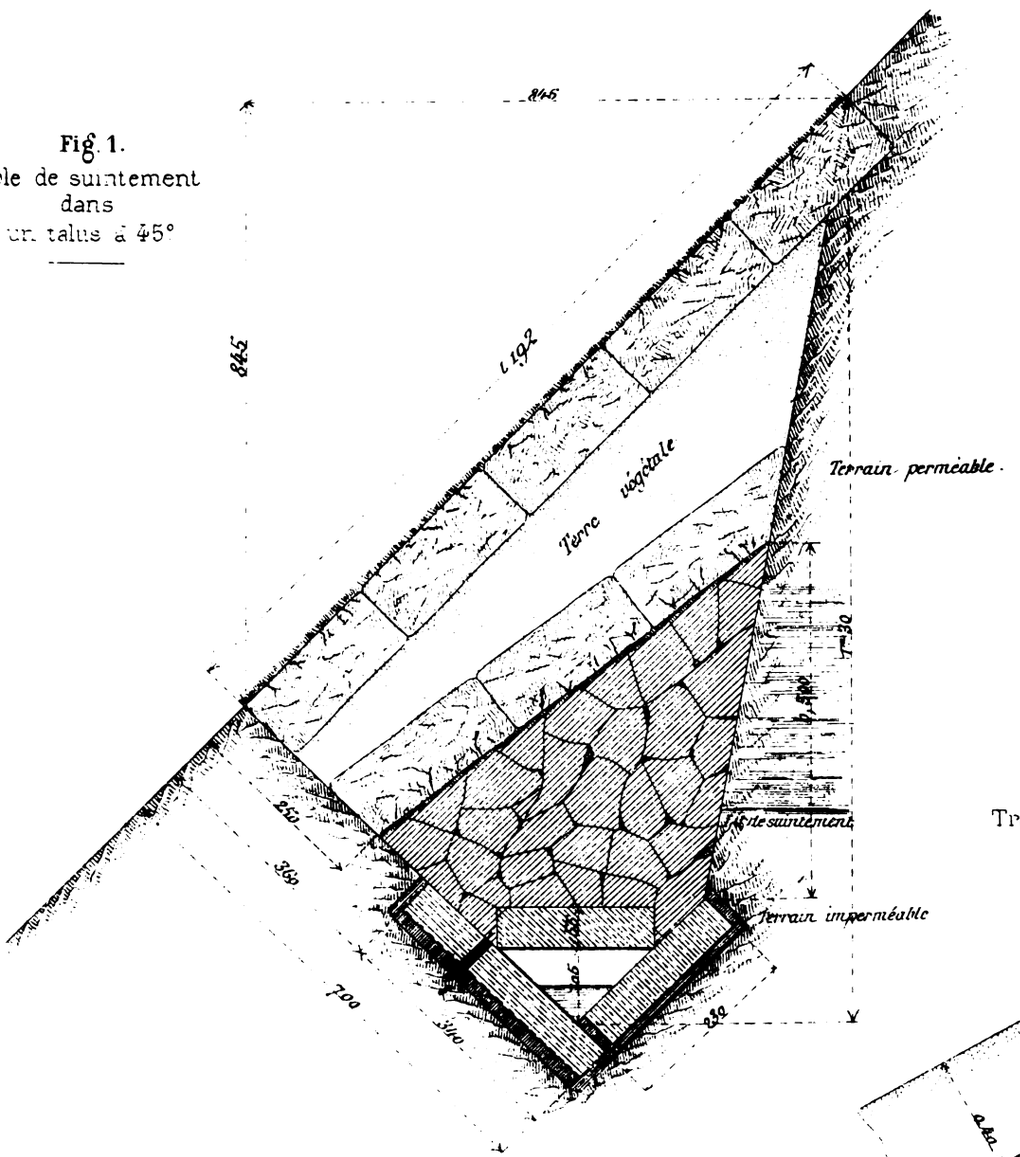


Fig. 7.
Rencontre d'une rigole et d'un dégorgeoir en briques

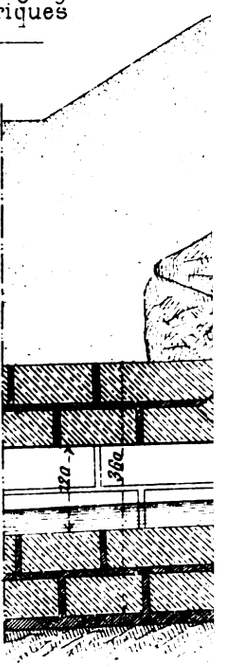
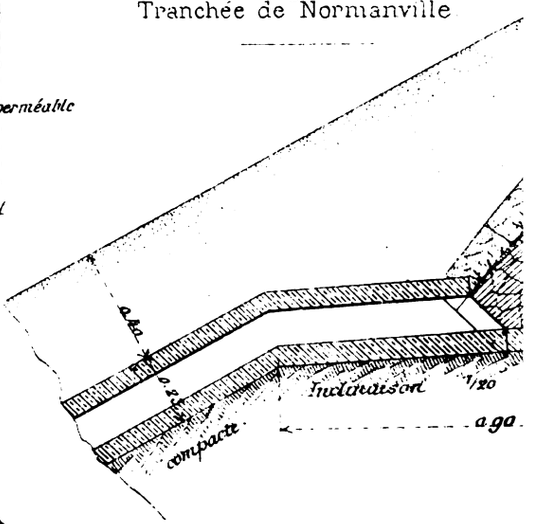


Fig. 5.
Tranchée de Normanville



Coupe sur l'axe d'un dégorgeoir.

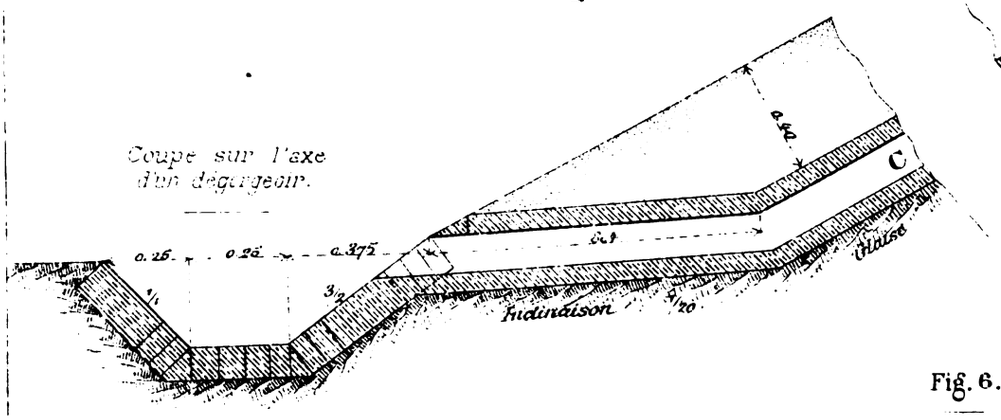
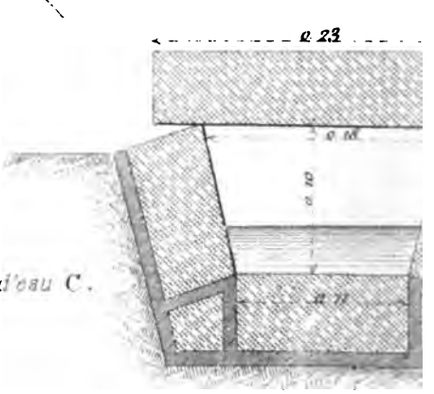


Fig. 6.
Coupe de la descente d'eau C.



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SSEMENT DES TALUS.

Fig. 8.

Coupe en travers du dégorgeoir

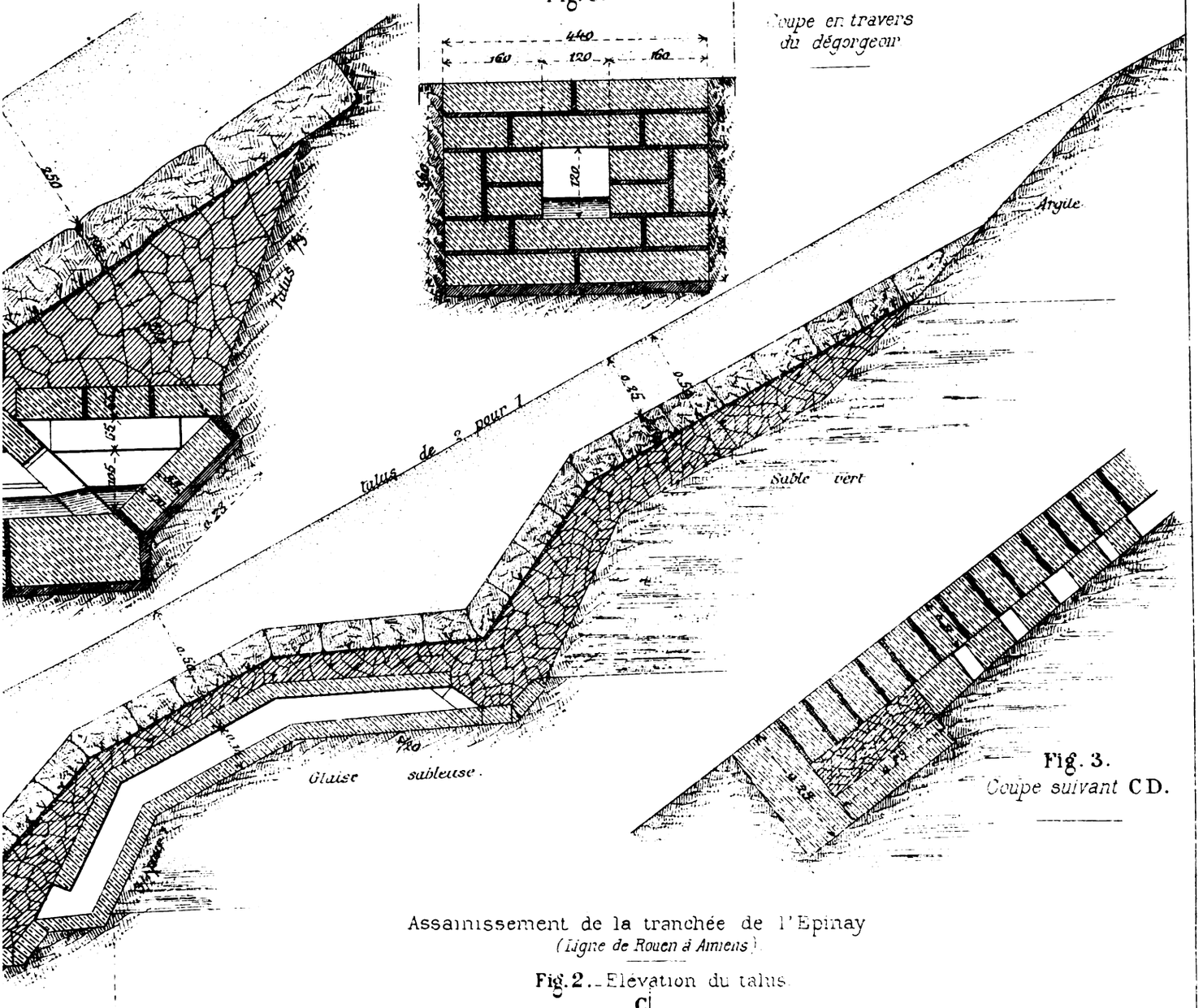


Fig. 3.
Coupe suivant CD.

Assainissement de la tranchée de l'Epinay
(ligne de Rouen à Amiens)

Fig. 2. - Elevation du talus

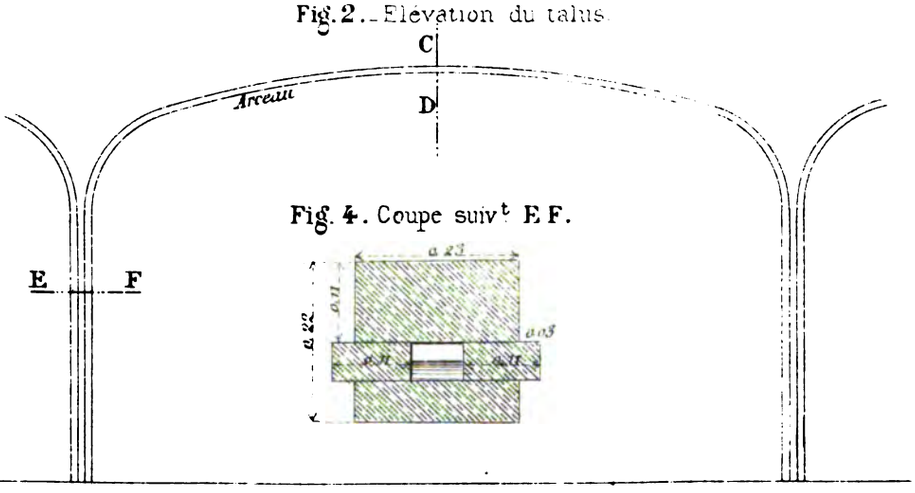
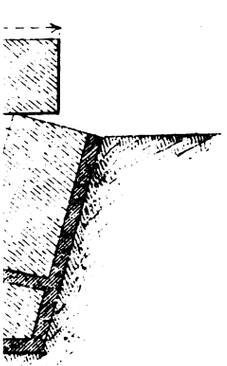


Fig. 4. Coupe suivt EF.



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CONSOLIDATION ET ASSAINISSEMENT

Fig. 2.

Section courante d'un drain.

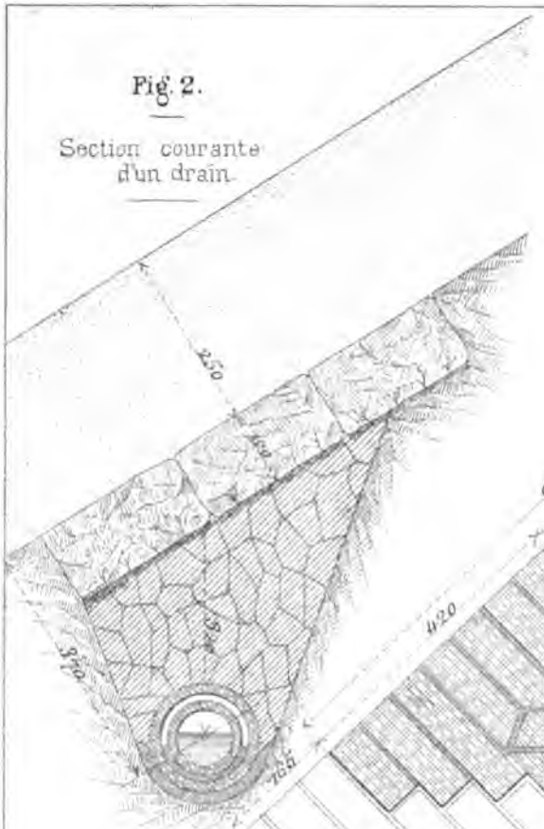


Fig. 1. Assainissement par drainage.

Coupe verticale suivant l'axe d'un dégorgeoir.

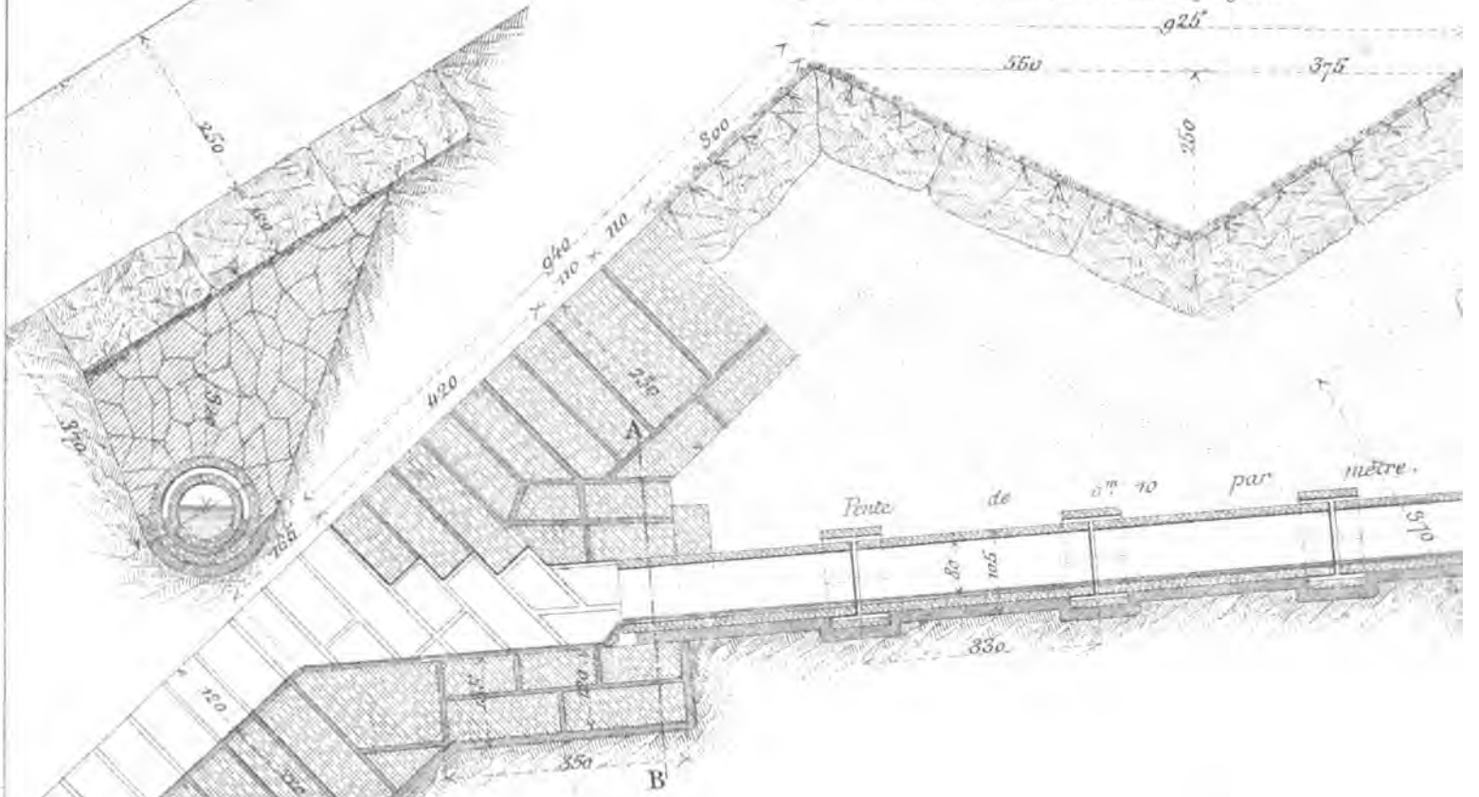
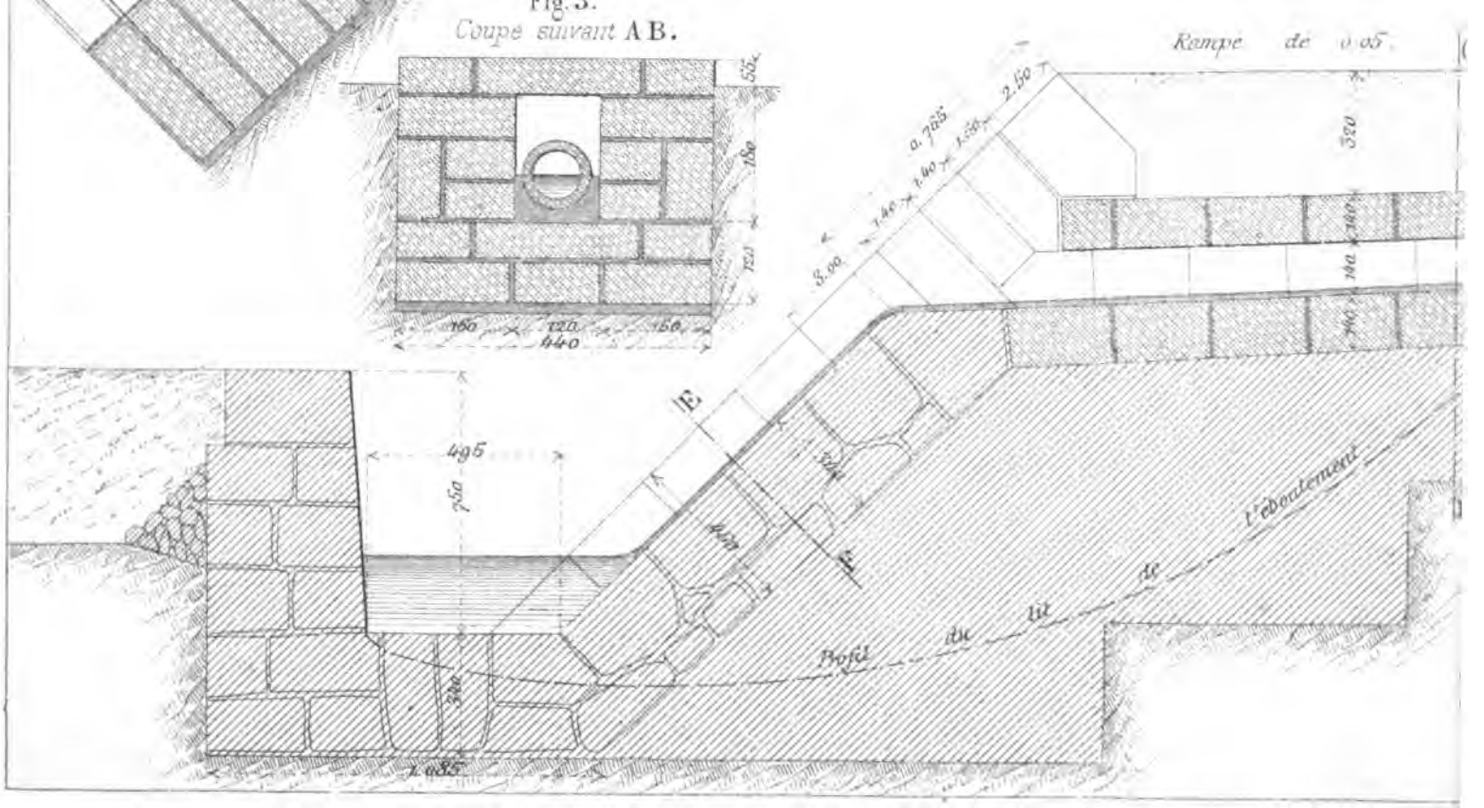


Fig. 3.

Coupe suivant AB.



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DES TALUS.

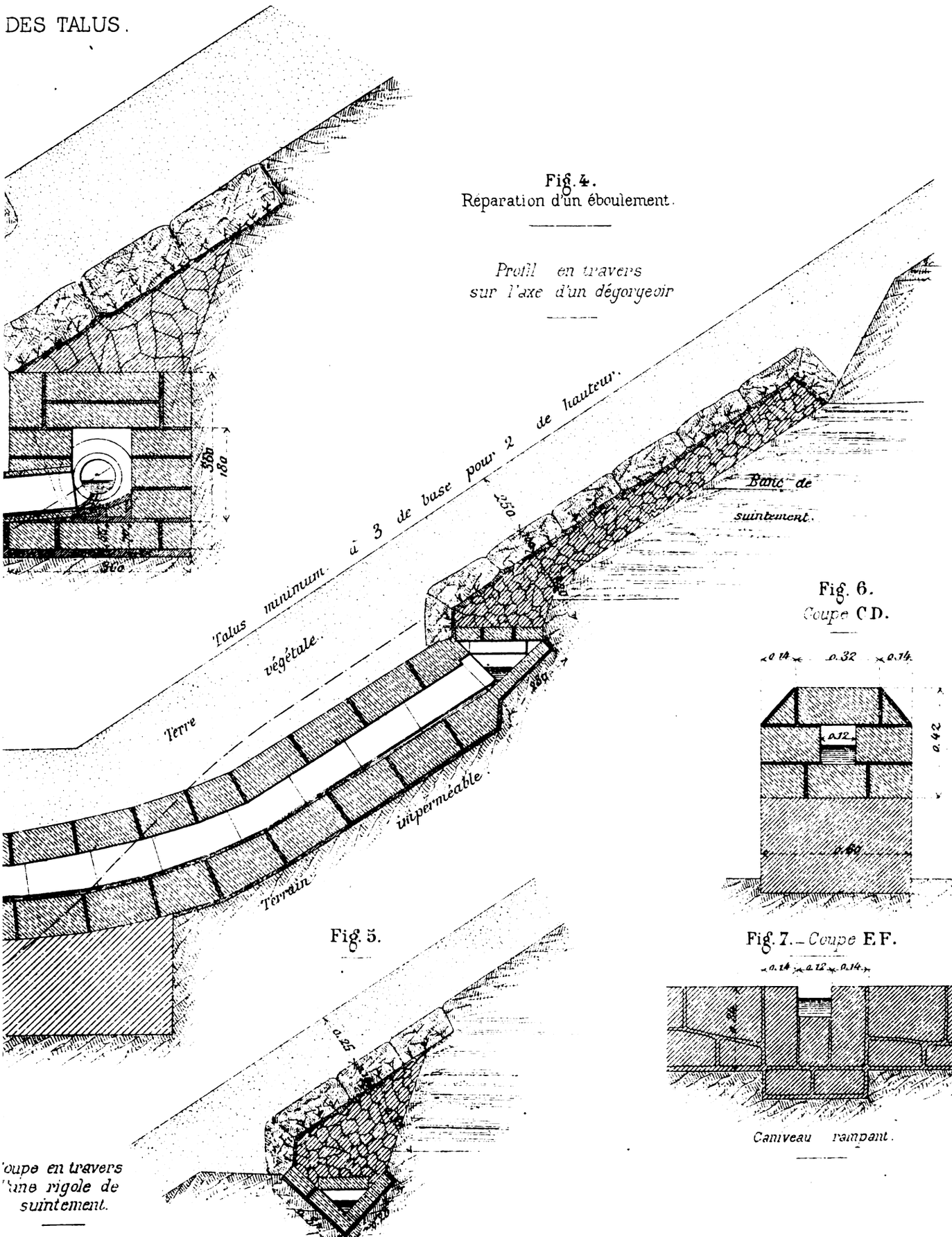


Fig. 4.
Réparation d'un éboulement.

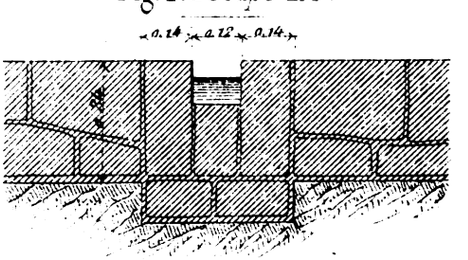
Profil en travers sur l'axe d'un dégorgeoir

Fig. 6.
Coupe CD.

Fig. 5.

Coupe en travers d'une rigole de suintement.

Fig. 7. – *Coupe* EF.



Caniveau rampant.

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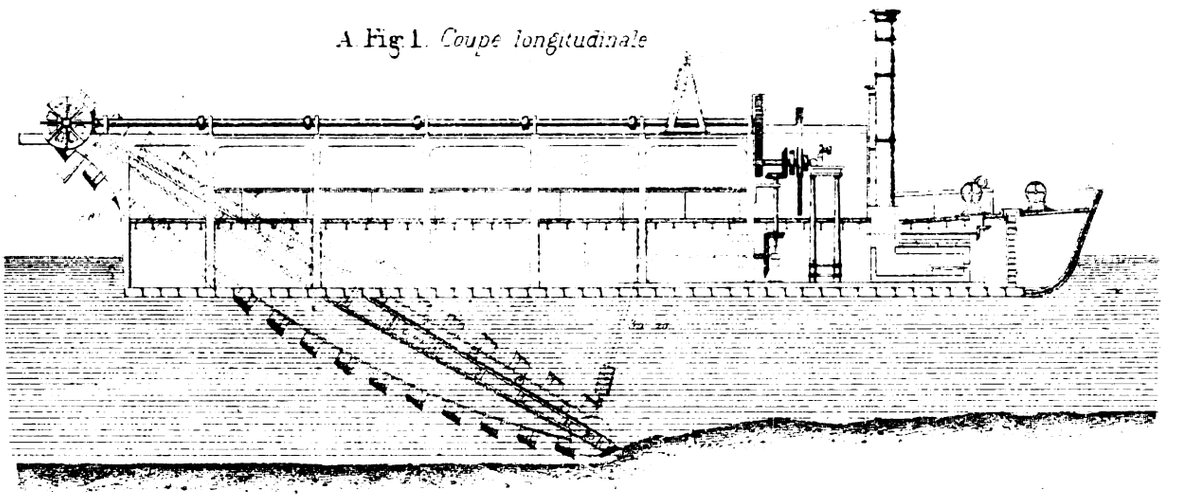
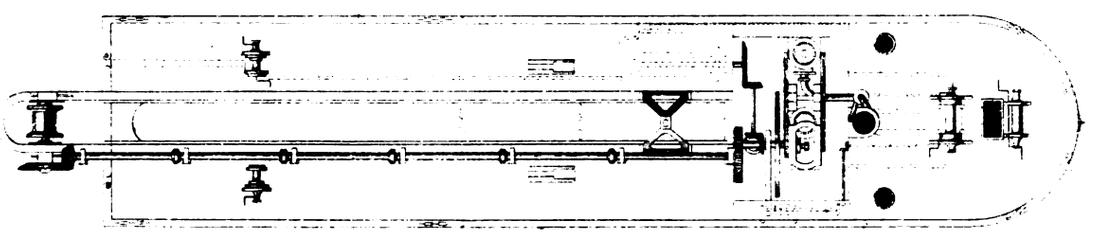
Planche N°7.

A. Fig 1. *Coupe longitudinale*

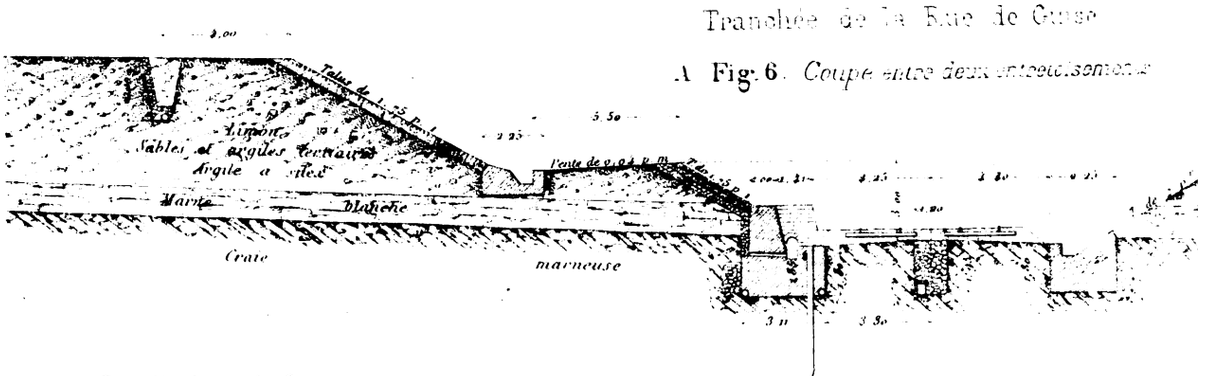


A. Fig 2. *Plan.*



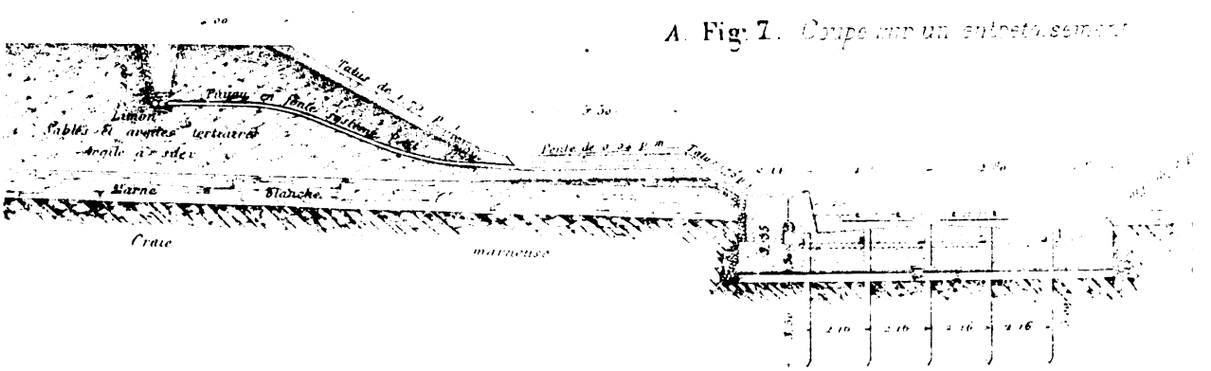
Tranchée de la Rue de Guise

A. Fig. 6. *Coupe entre deux entretoisements*



Côté Nord, vers le Coteau

A. Fig. 7. *Coupe sur un entretoisement*



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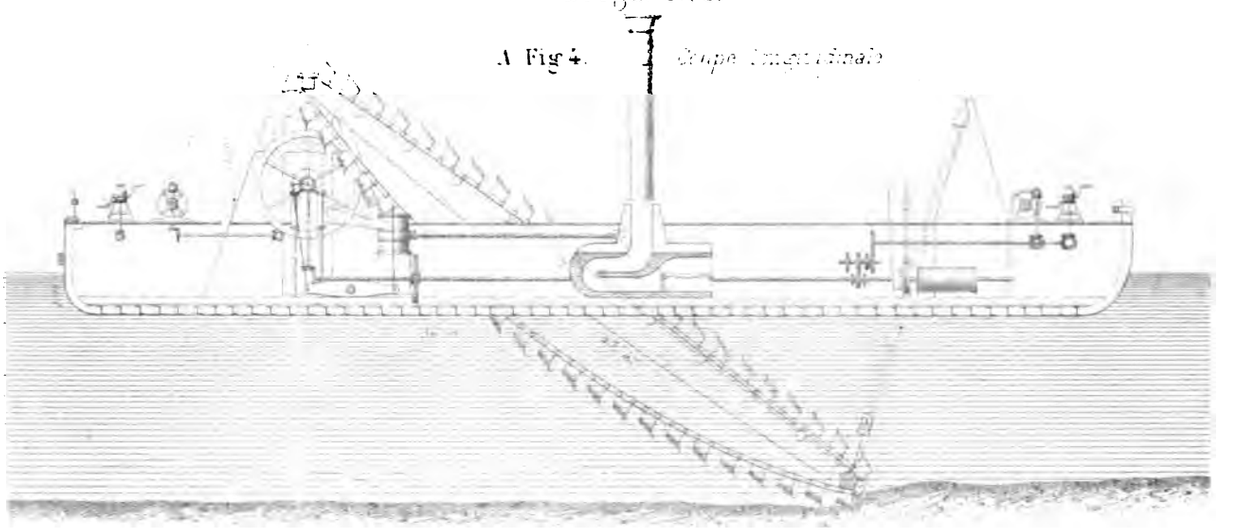
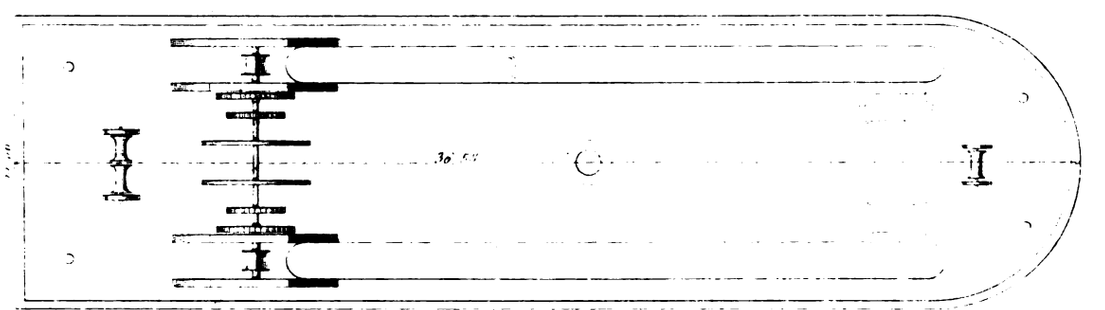
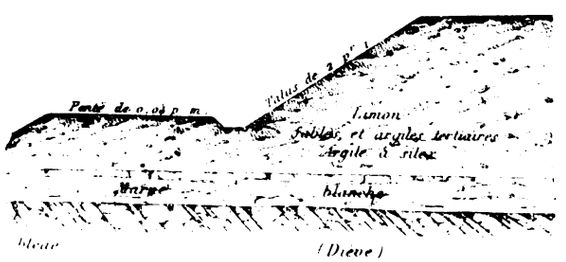
Drague N° 6.

A Fig 4. *Coupe longitudinale*



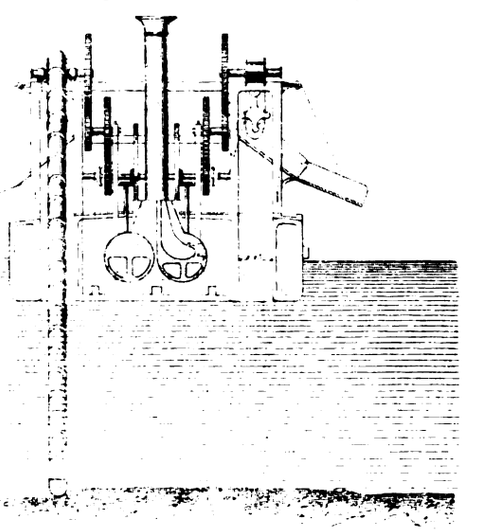
A. Fig 5 *Plan*





Coté Sud vers le Canal

A. Fig. 3. *Coupe transversale*



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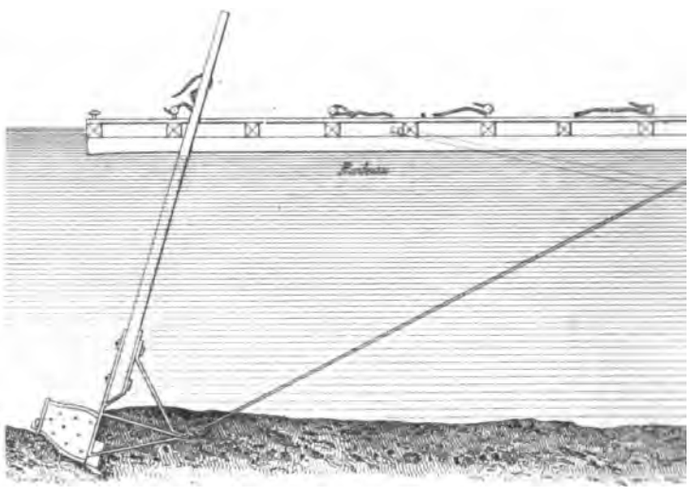
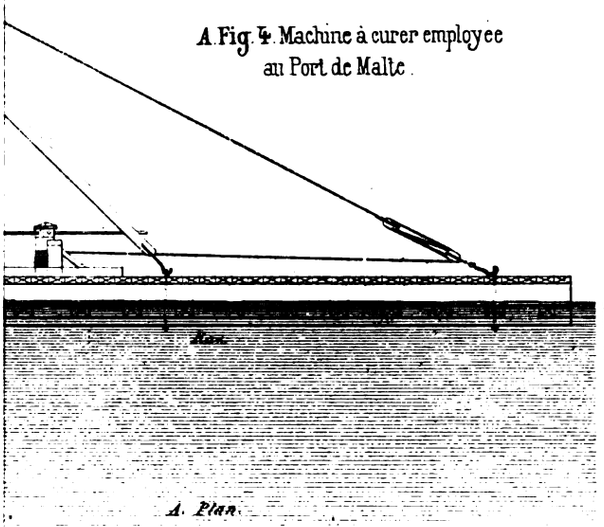
Drague employée au curage du Port de Flessingue en 18



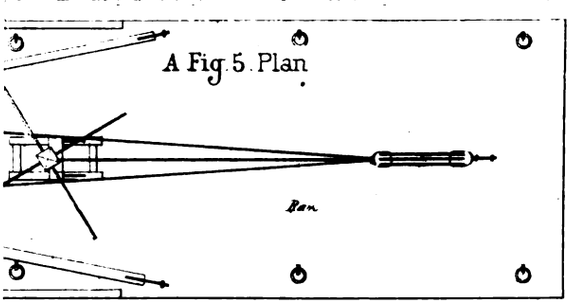
anes à curer Italiennes, de Malte et de Venise

tion longitudinale.

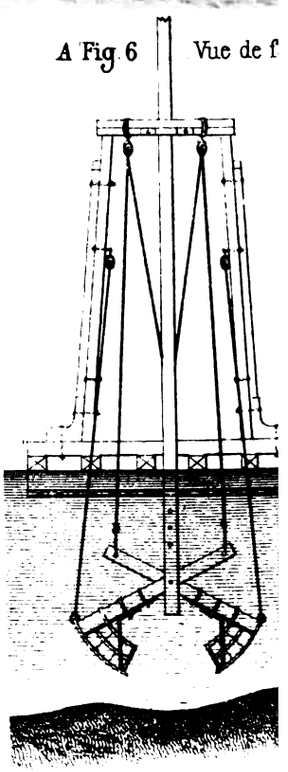
A Fig. 4. Machine à curer employée au Port de Malte.



A Fig. 5. Plan



A Fig. 6 Vue de f



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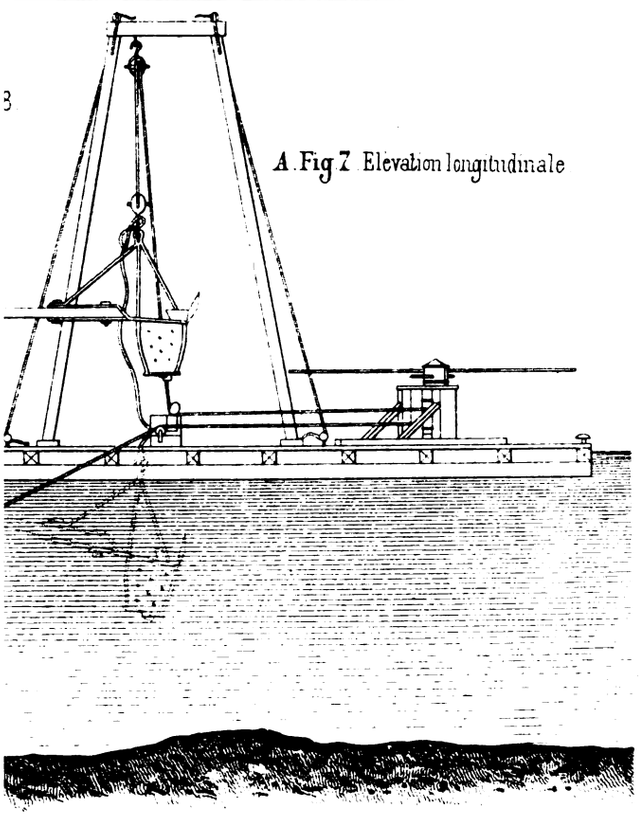
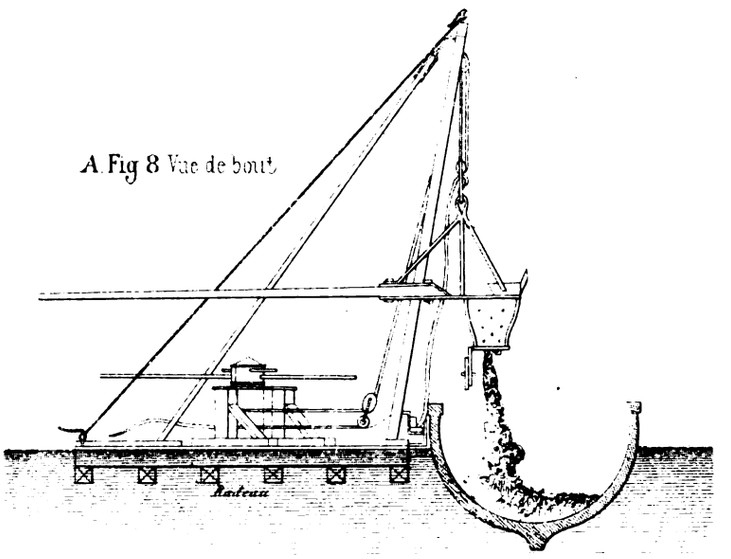


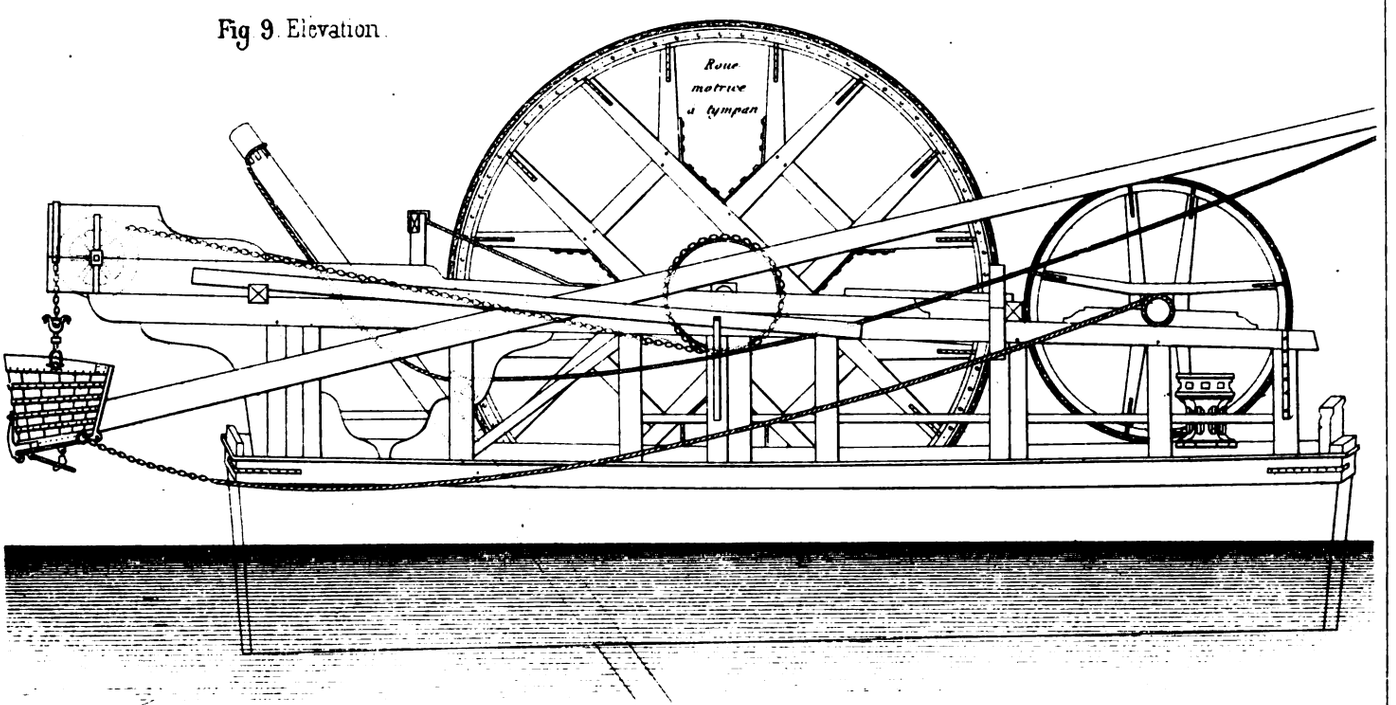
A. Fig 7 Elevation longitudinale



A. Fig 8 Vue de bout

Machine à curer employée au Port de Brest.

Fig 9. Elevation.



Augustins, Paris.

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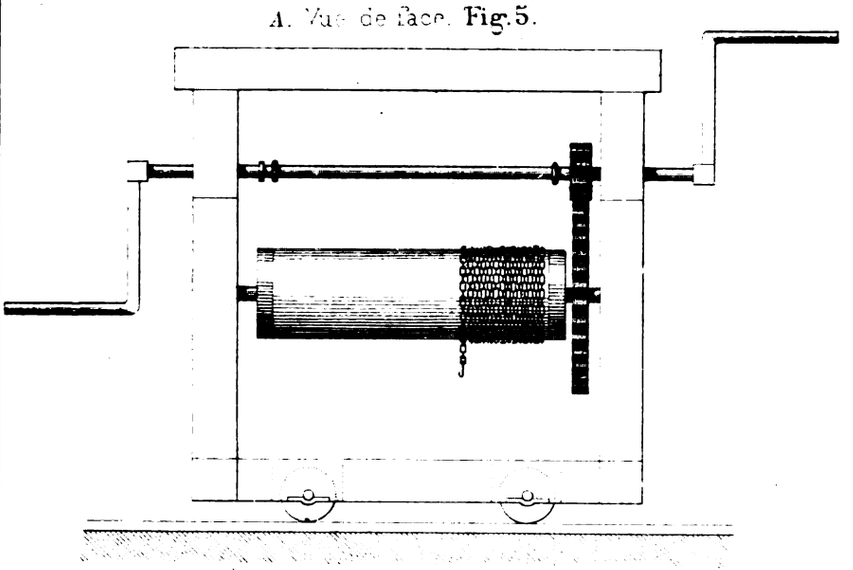
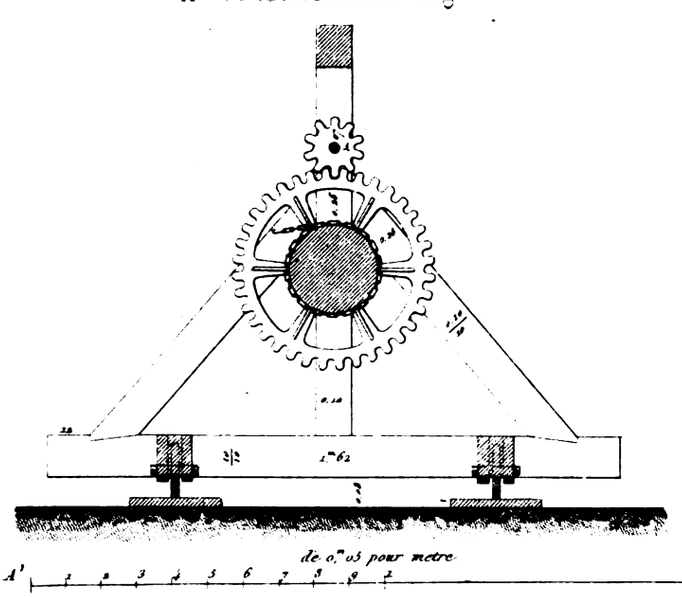
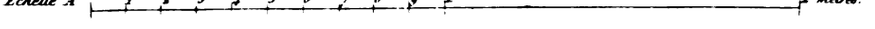
A. Vue de face. Fig. 5.

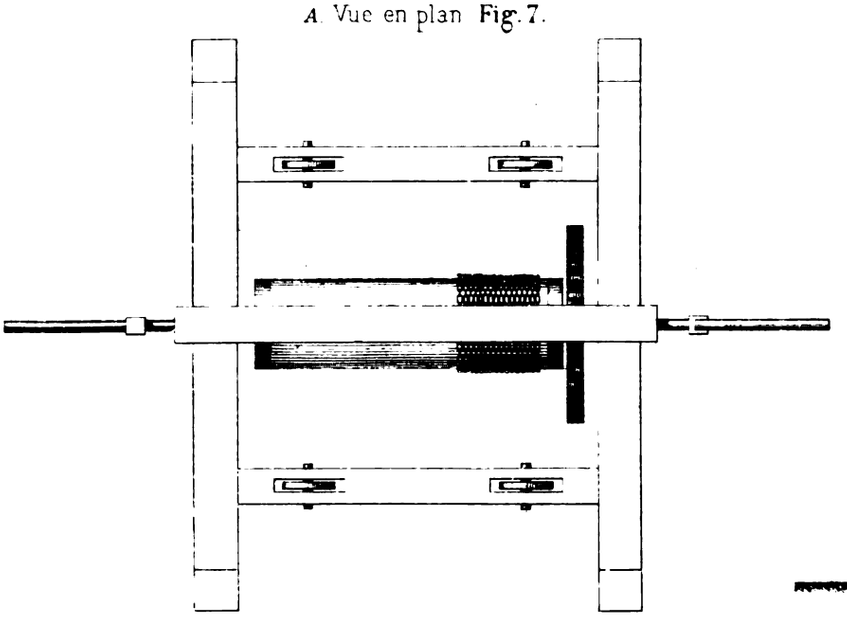


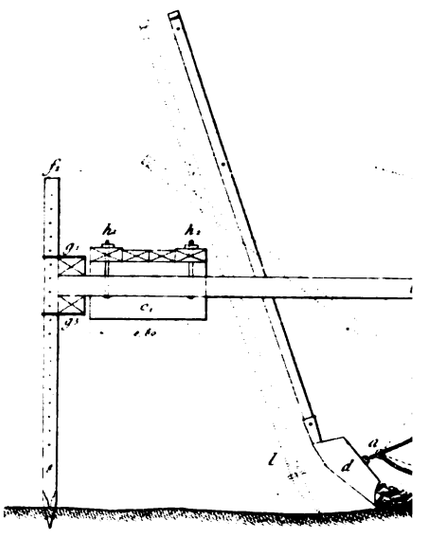
A. Vue latéralement. Fig. 6.

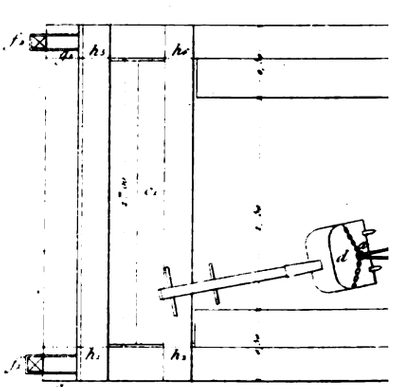




A. Vue en plan Fig. 7.







A. Coupe de la machine au moment de l'emploi de la tenaille Fig. 3.

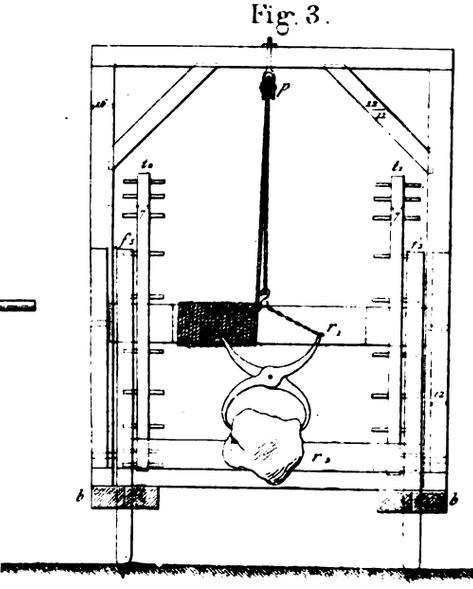


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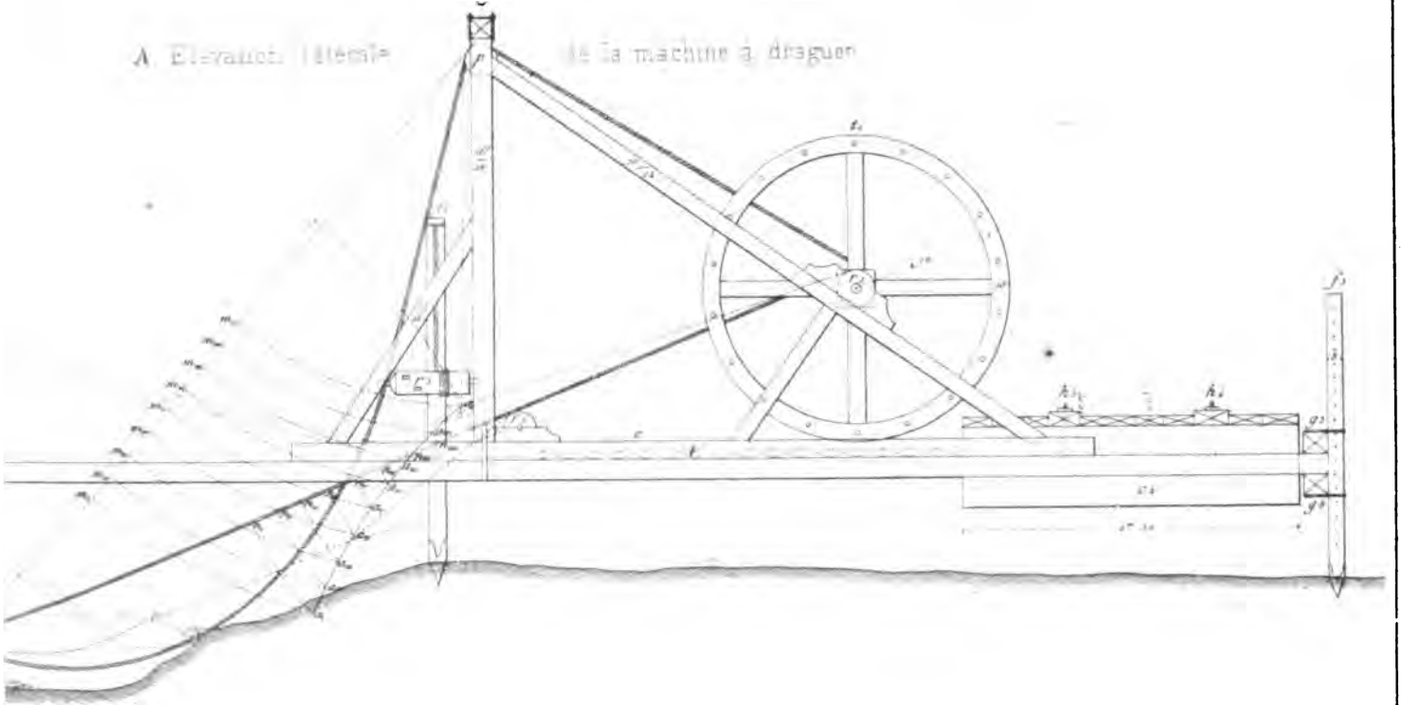
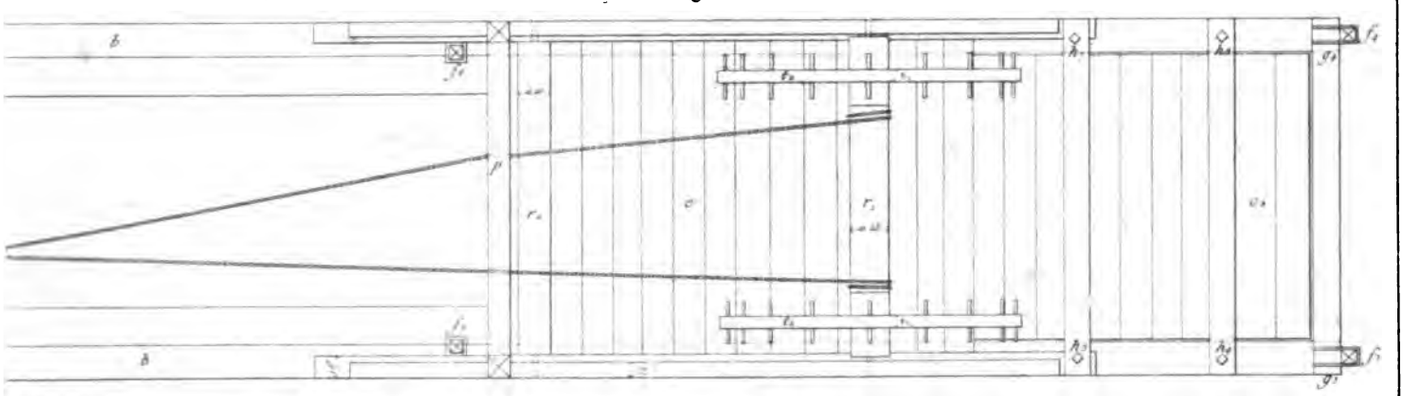
Fig. 1

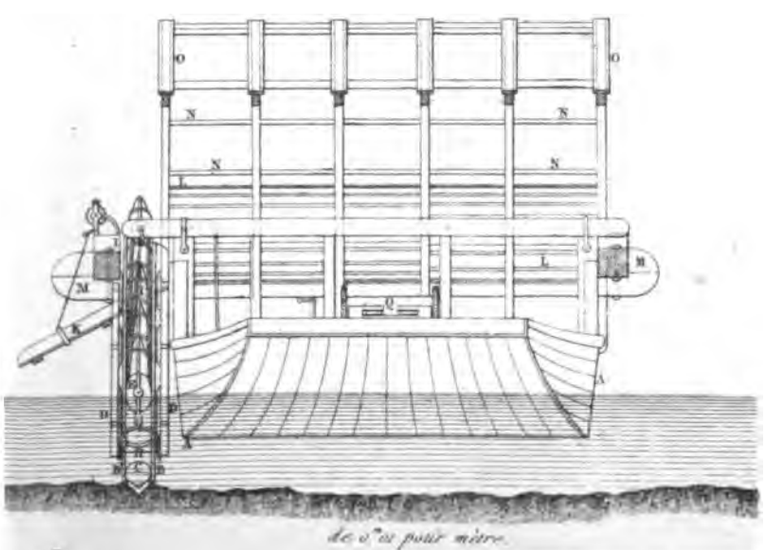
A. Elévation latérale de la machine à draguer



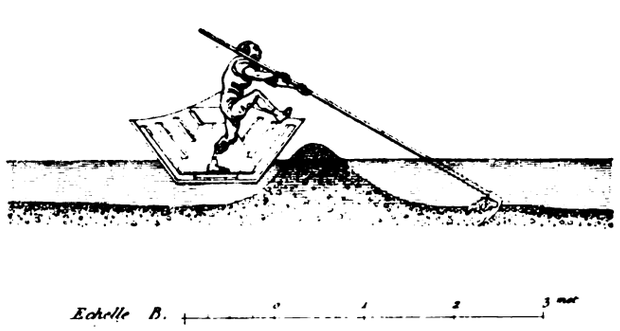
A. Plan de la machine à draguer Fig 2



C. Elévation de la drague (Côté de la Proue). Fig 8.



B. Position d'un dragueur à main Fig 4.



9, Quai des Augustins, Paris

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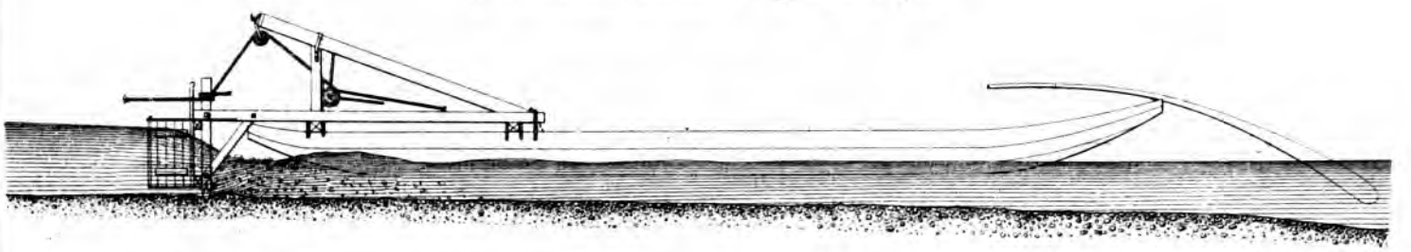
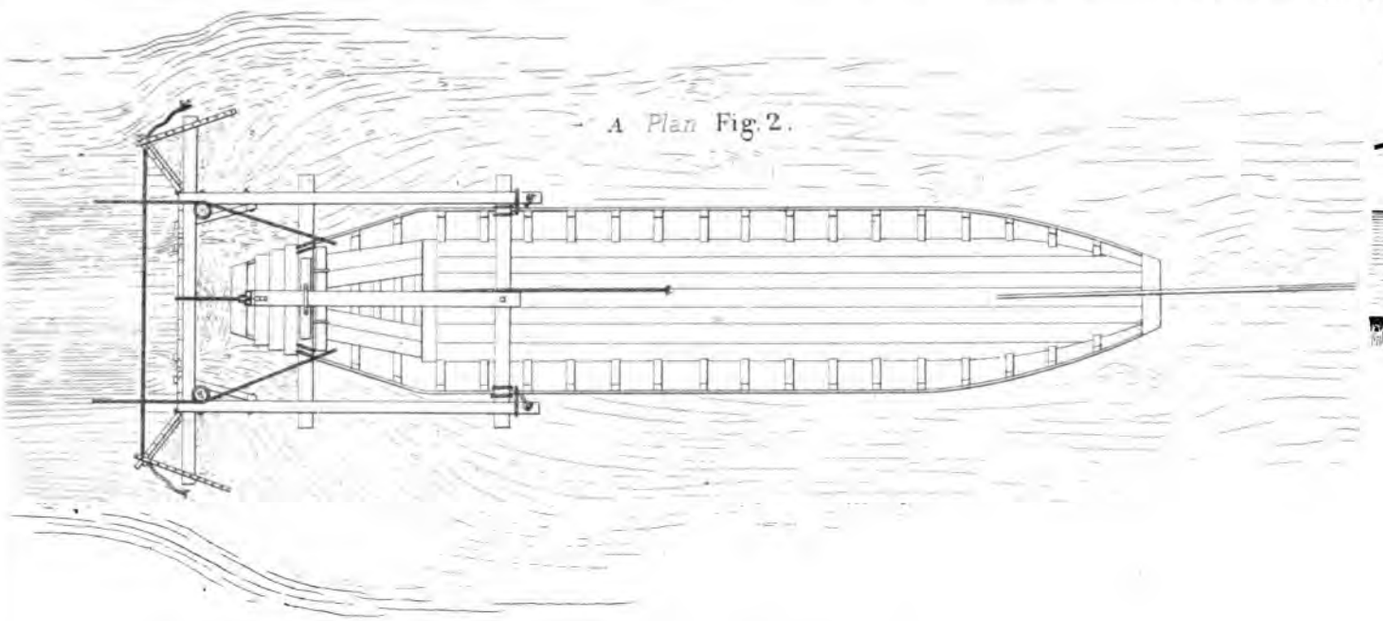
Appareil employé pour ouvrir des passes dans les bancs de gravier

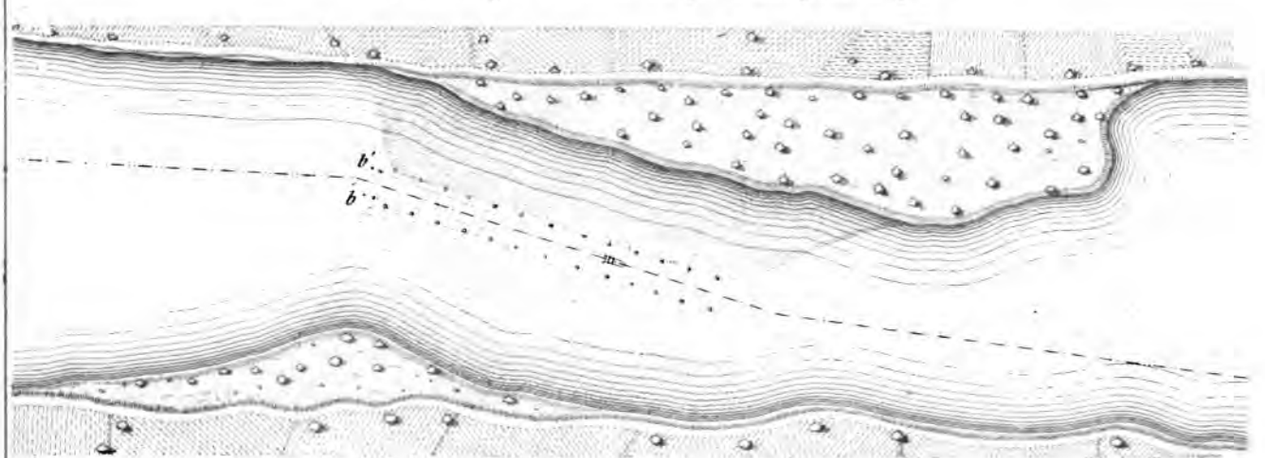
A *Elevation latérale de l'appareil* **Fig. 1**



A *Plan* **Fig. 2.**



C. Plan général d'un maigre d'une passe. **Fig. 3.**



Echelle A. 0 1 2 3 4 5 mèt.

Echelle C. 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 mèt.

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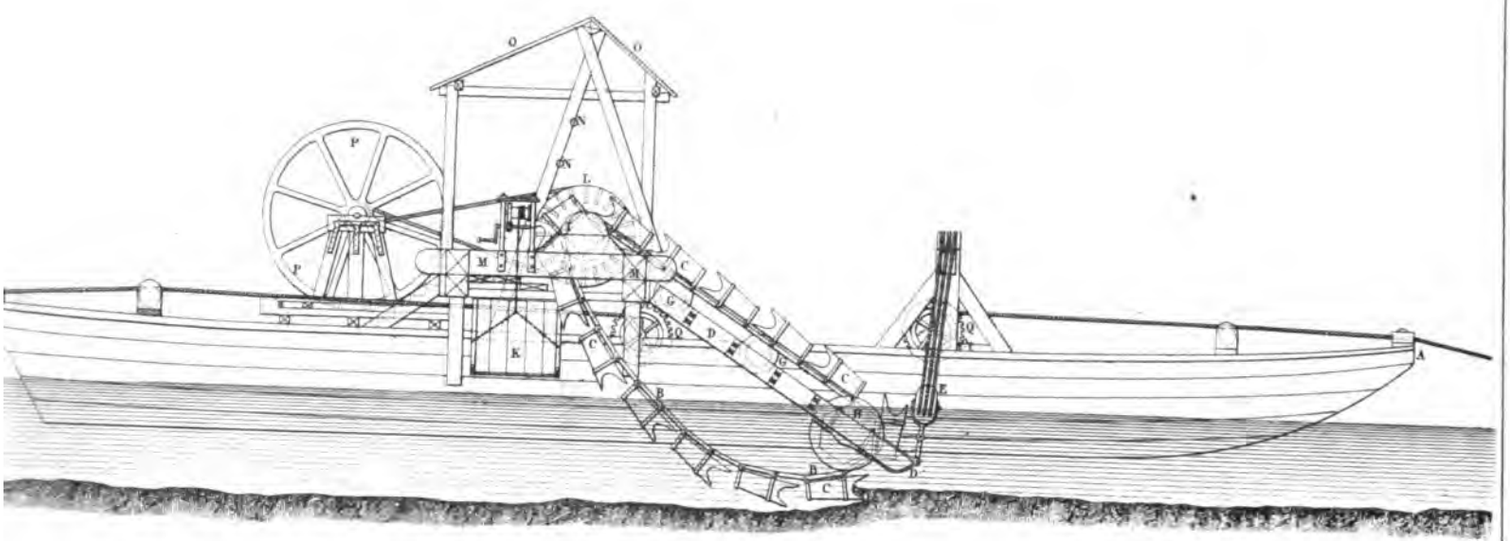
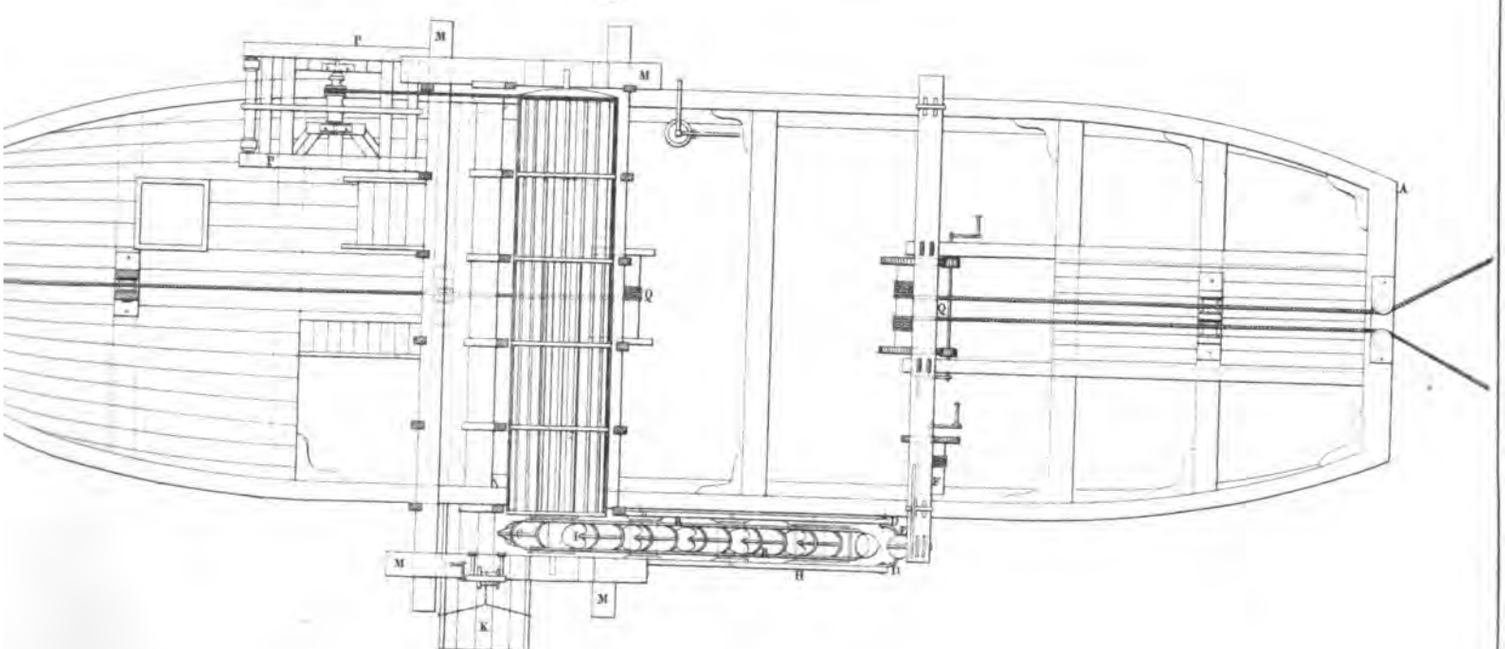
A. Élévation de la drague (porte aux chapelets). Fig. 4.



B. Plan du bateau et de la drague

Fig. 5.



de 0m01 pour mètre

B Échelle 1 2 3 4 5 10 mètres

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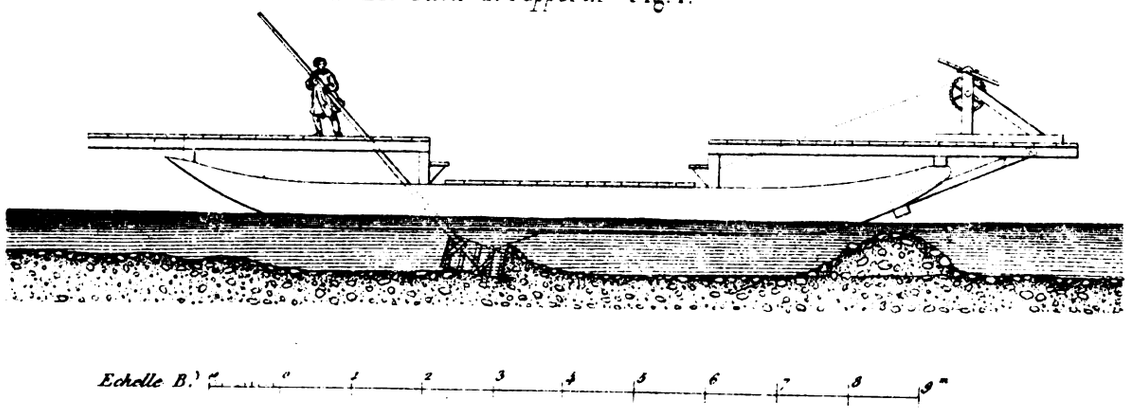
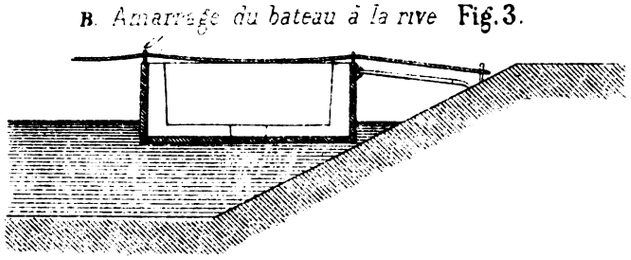
Grande drague en

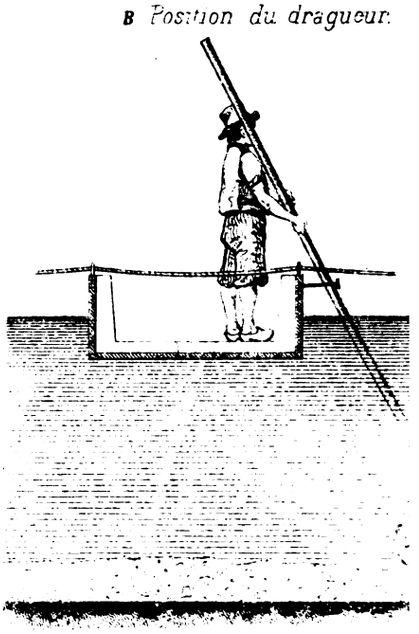
B' Elévation de l'appareil Fig. 1.



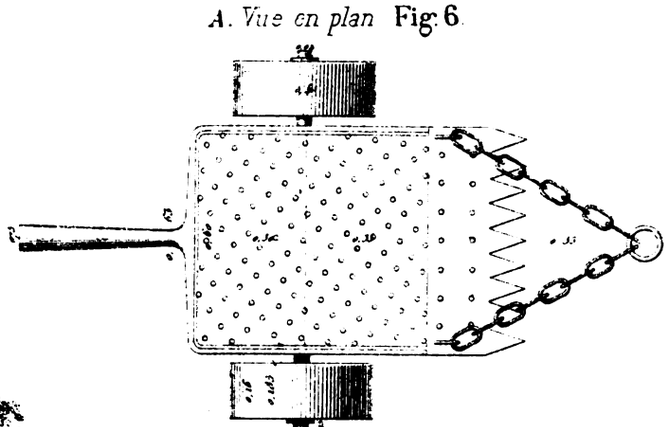
B. Amarrage du bateau à la rive Fig. 3.



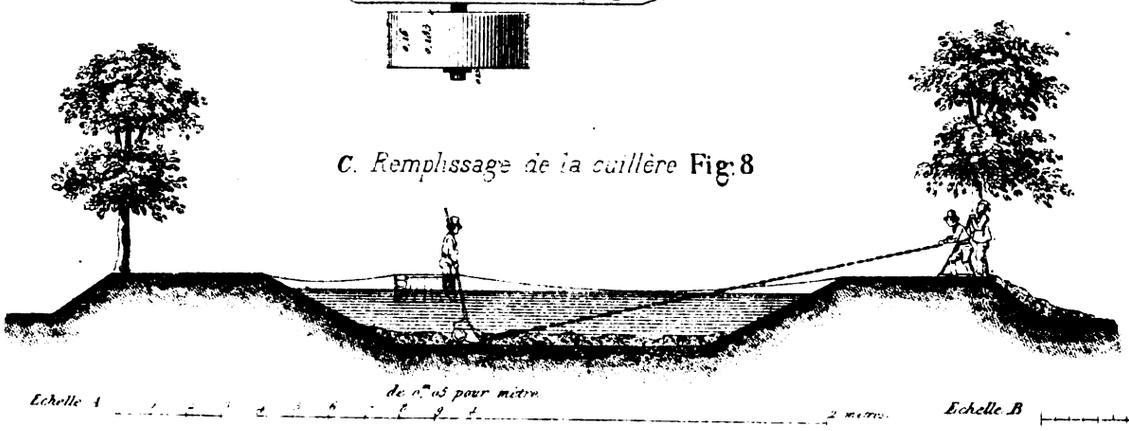
B Position du dragueur.



A. Vue en plan Fig. 6.



C. Remplissage de la cuillère Fig. 8



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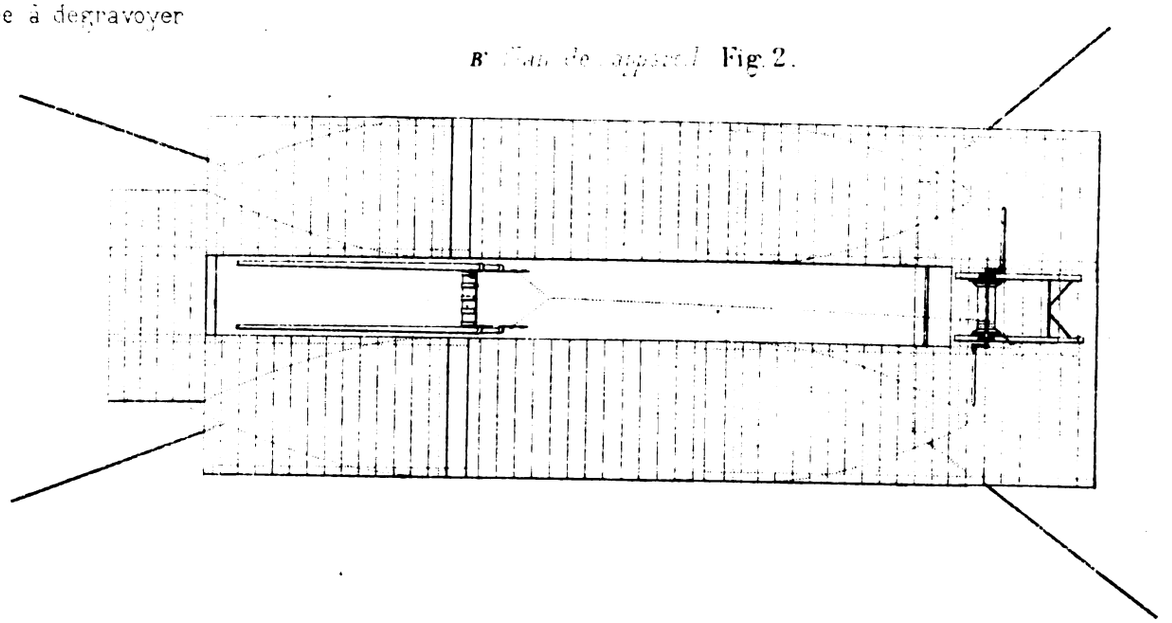
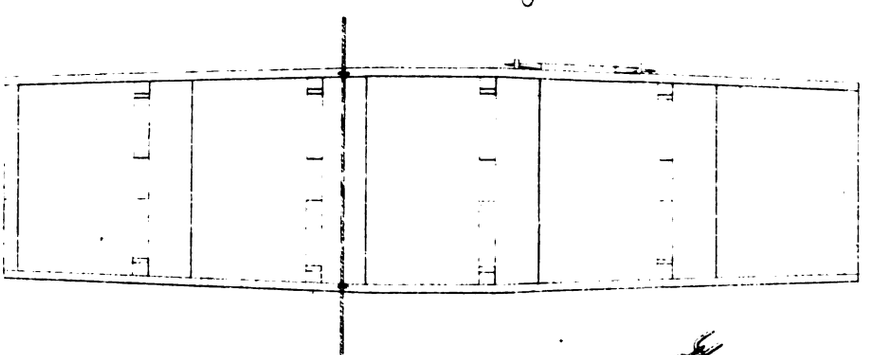
ployée à degravoyer

B' Plan de appareil Fig. 2.

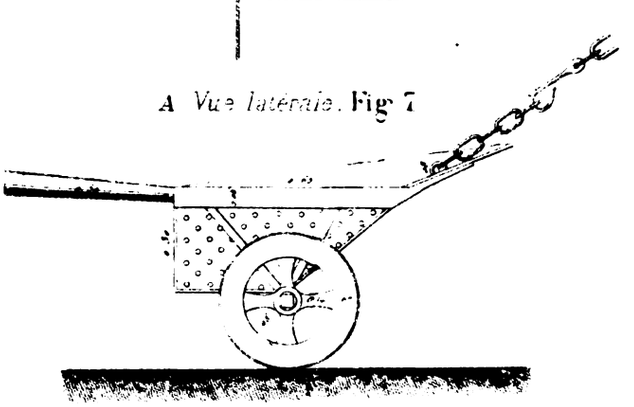


ig. 4.

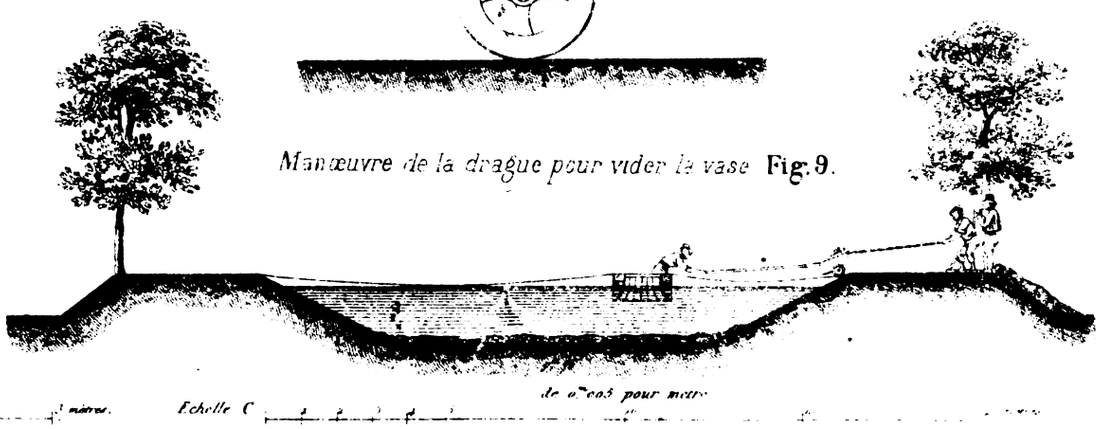
B. Position du bateau Fig. 5.



A Vue latérale. Fig 7



Manœuvre de la drague pour vider le vase Fig. 9.



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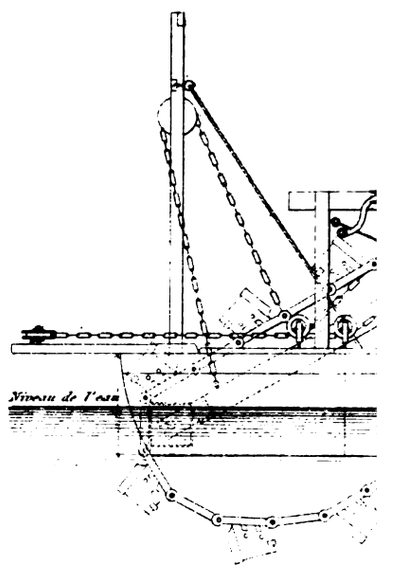
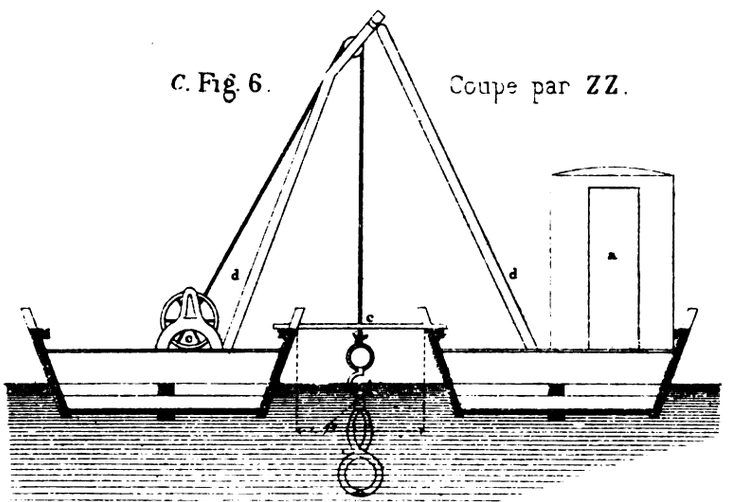
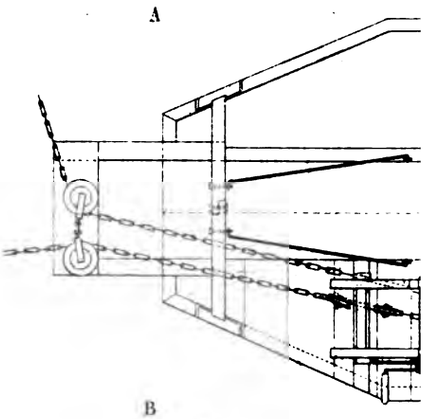
A. Fig. 1. Élévation g



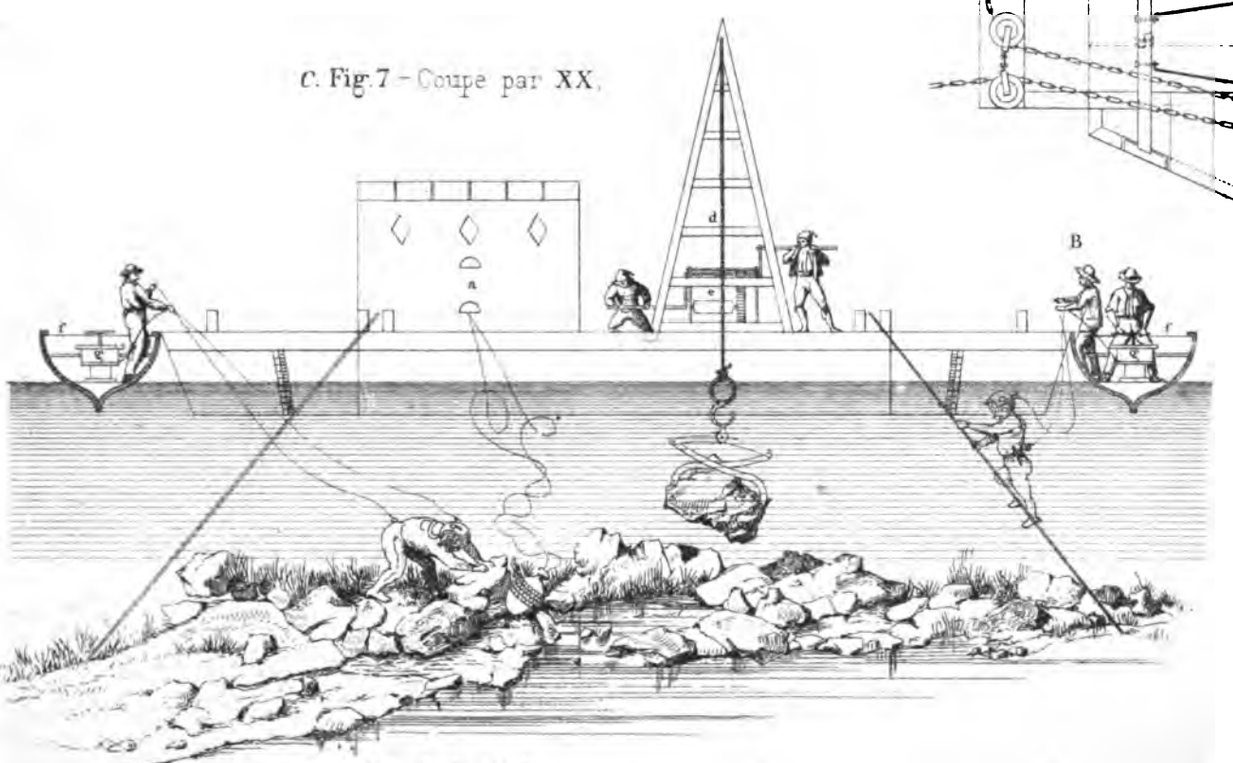
C. Fig. 6. Coupe par ZZ.



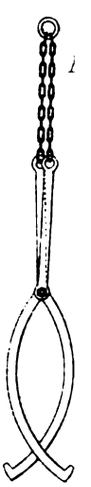
A

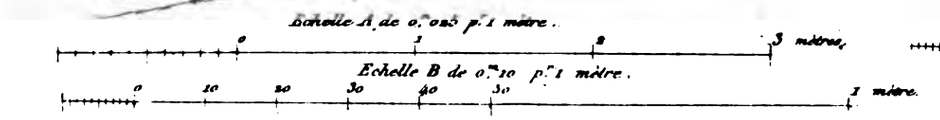


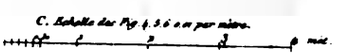
C. Fig. 7 – Coupe par XX.



D. Fig. 8







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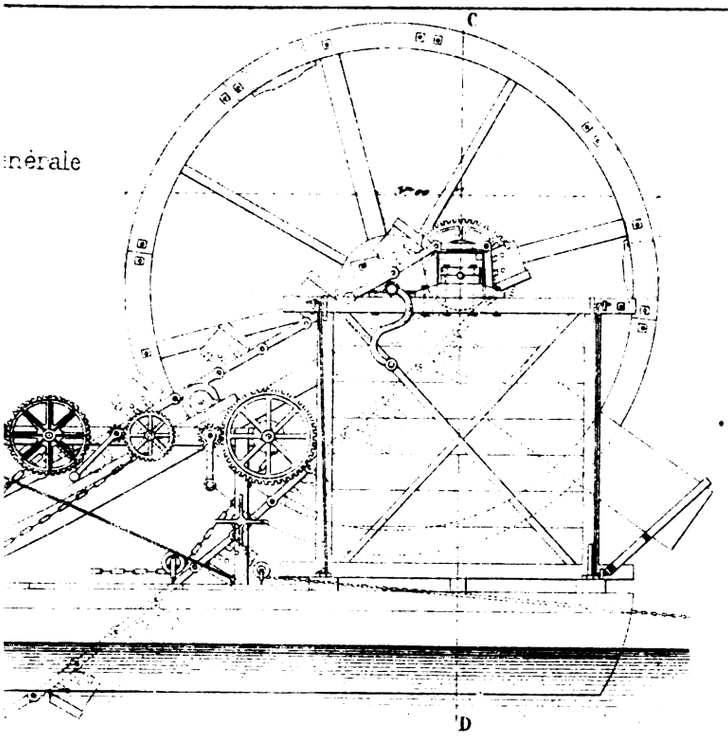
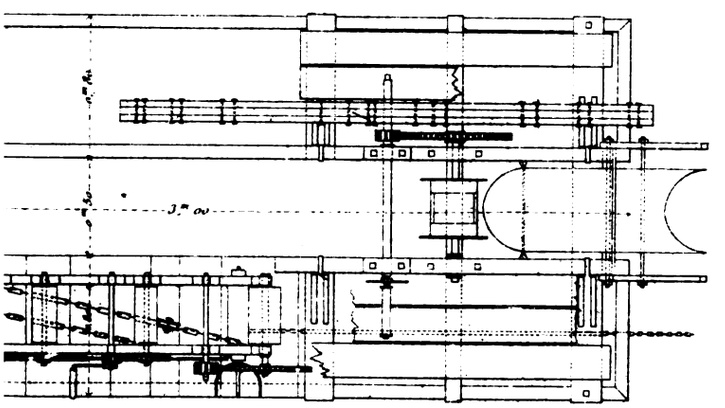
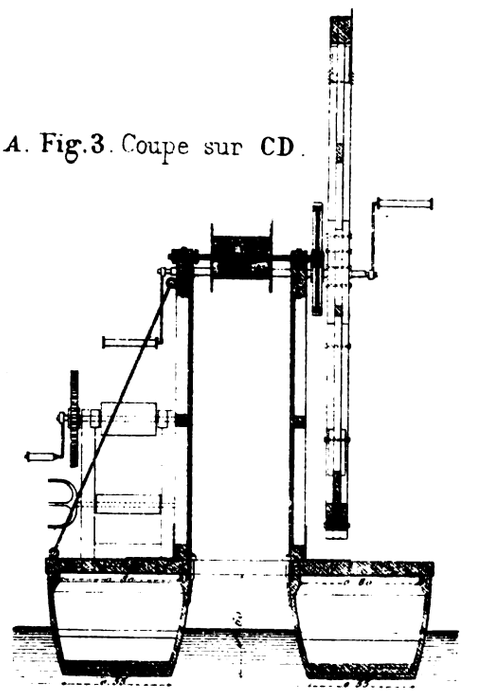


inérale

A. Fig. 2. Projection horizontale

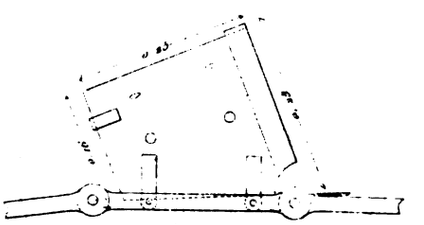


A. Fig. 3. Coupe sur CD.

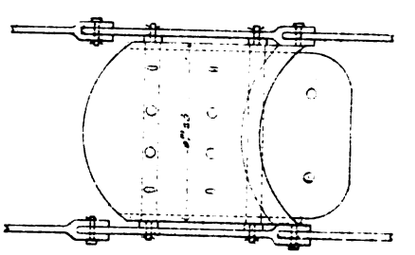


Godet et sa Chaine.

B. Fig. 4. Elévation.

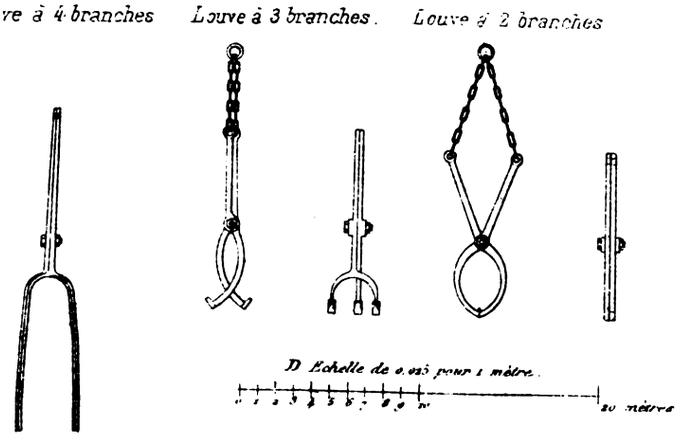


B Fig. 5. Plan

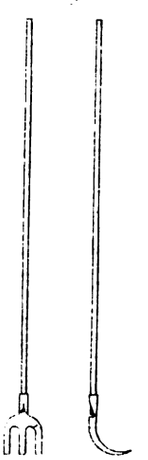


Outils employés pour l'enlèvement des débris de vieilles maçonneries.

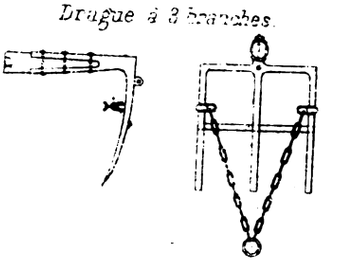
Louve à 4 branches. Louve à 3 branches. Louve à 2 branches.



Drague.



Drague à 3 branches.



Drague à 6 branches.

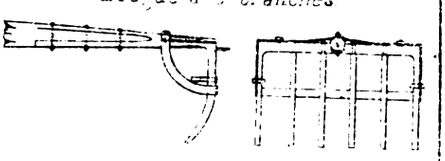


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Fig. 1.

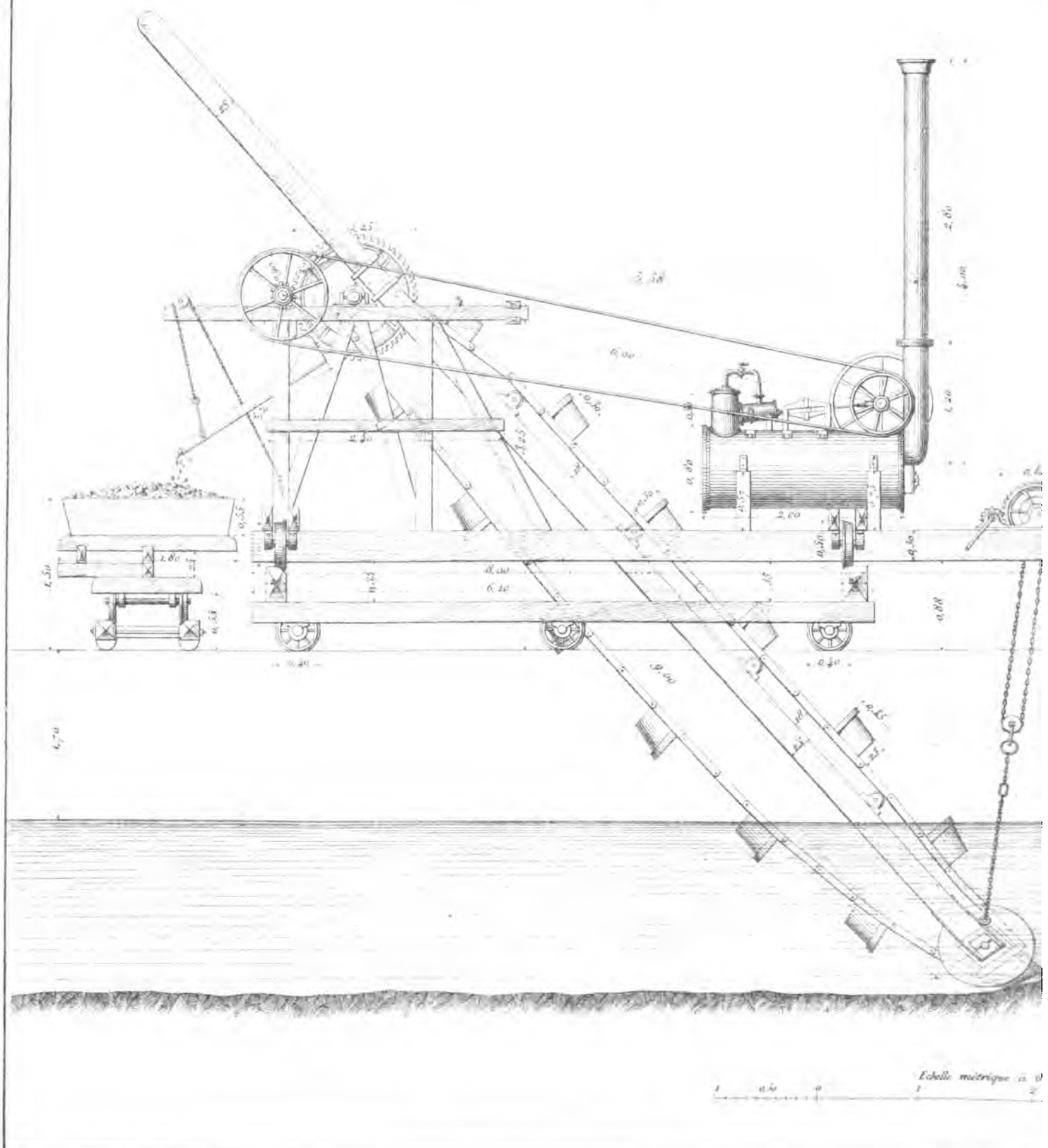

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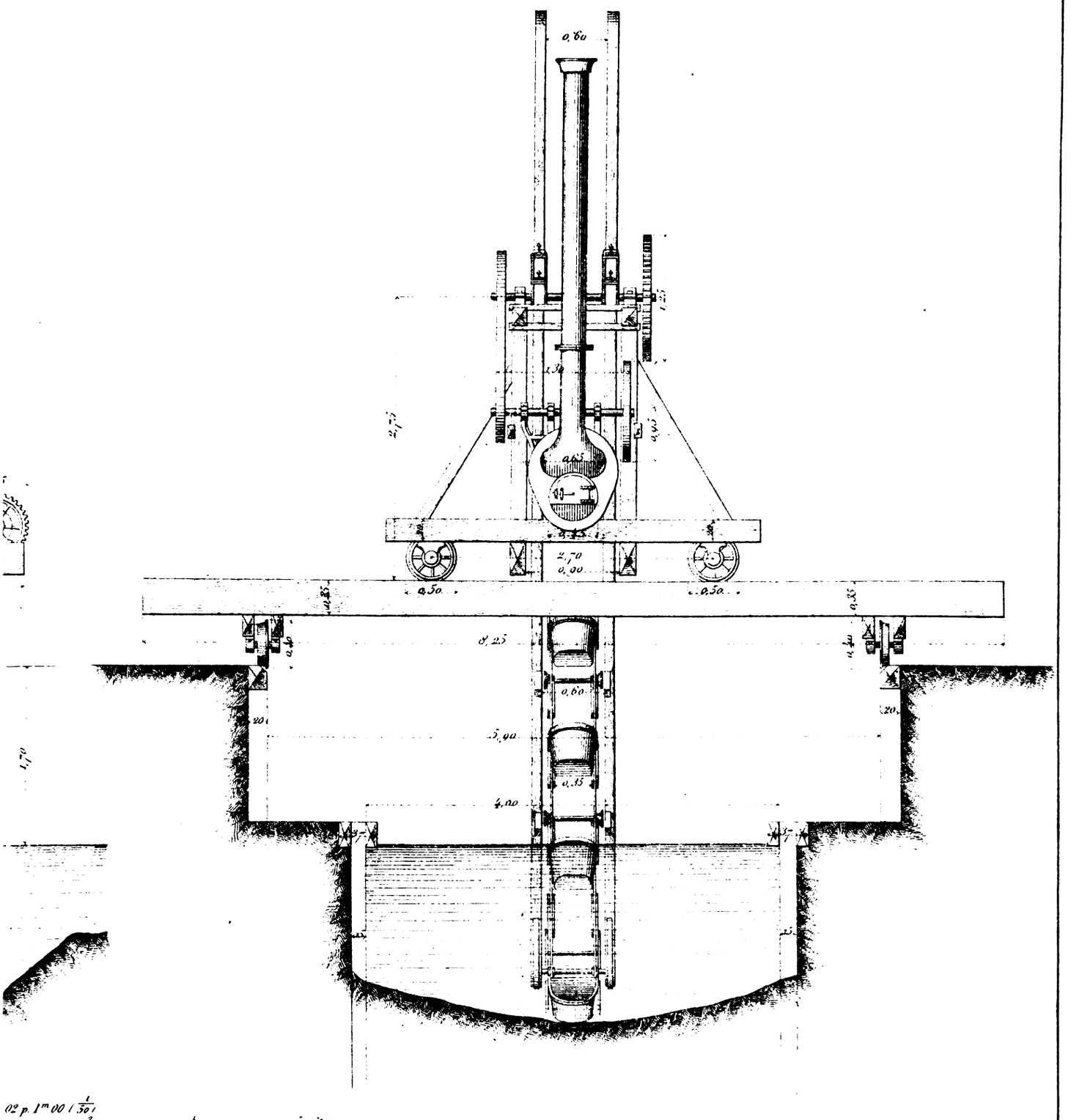
Fig. 2.

Vue de face à $0^m 02$ p $1^m 00$ $(\frac{1}{50})$



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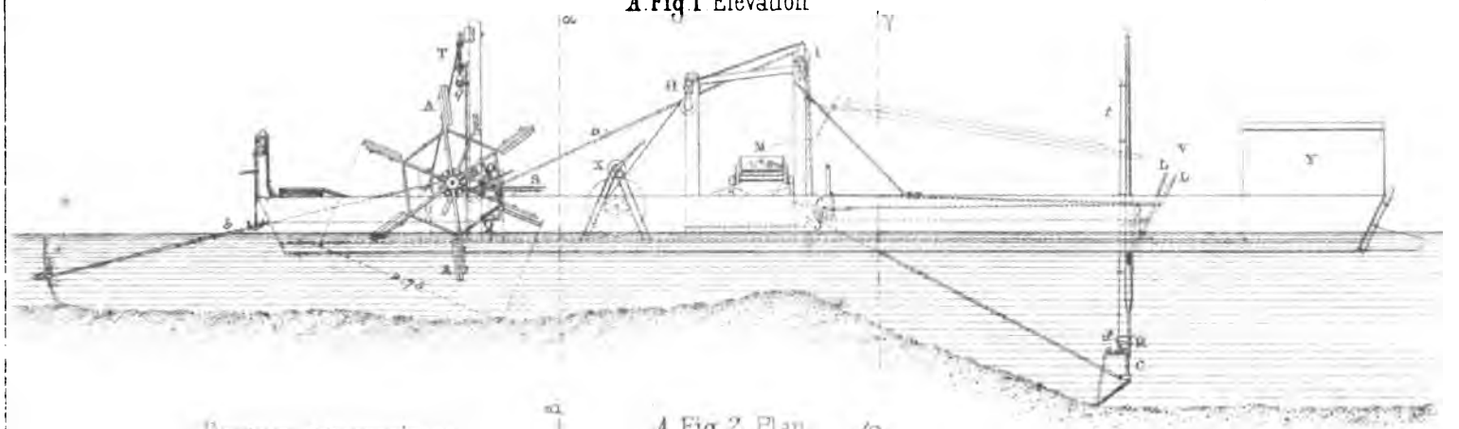
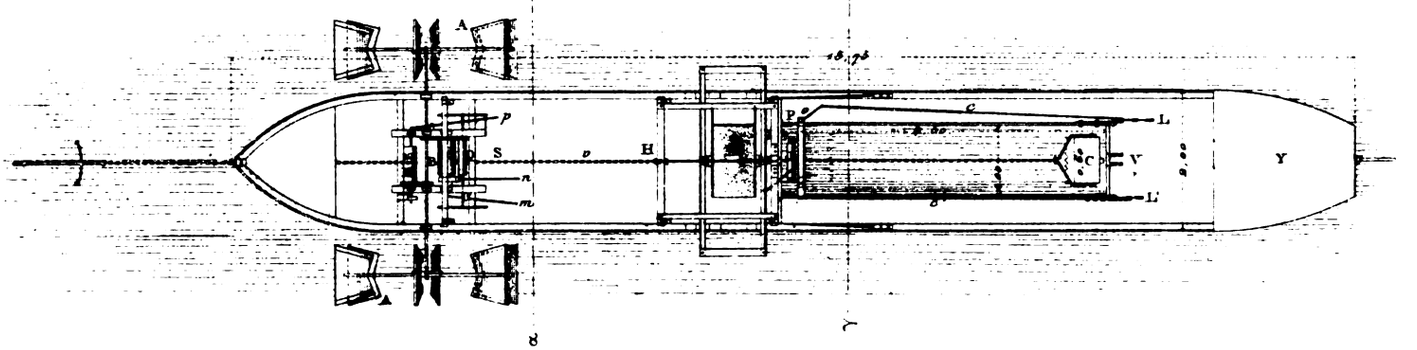
A. Fig. 1 Elevation



Drague aquamotrice A Fig. 2 Plan



Drague Canal Fig 3 Elevation

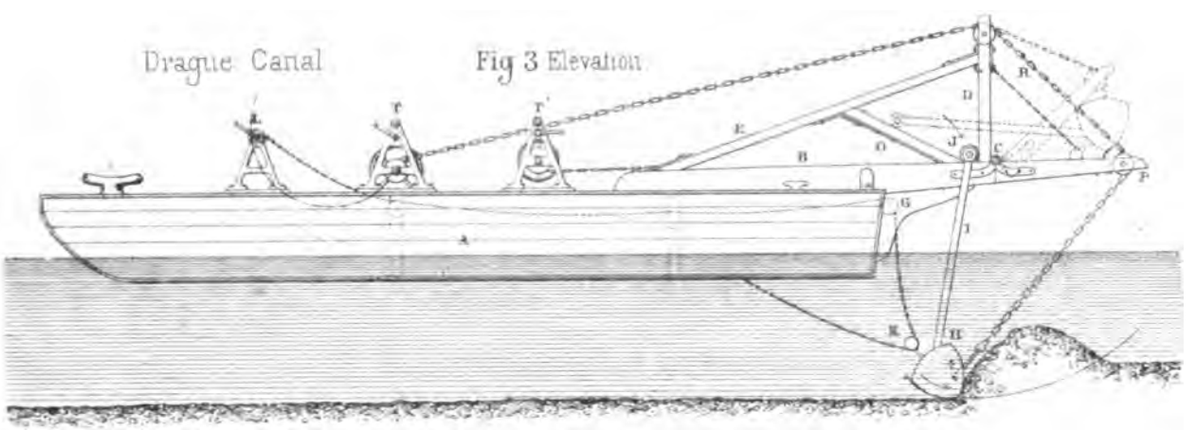
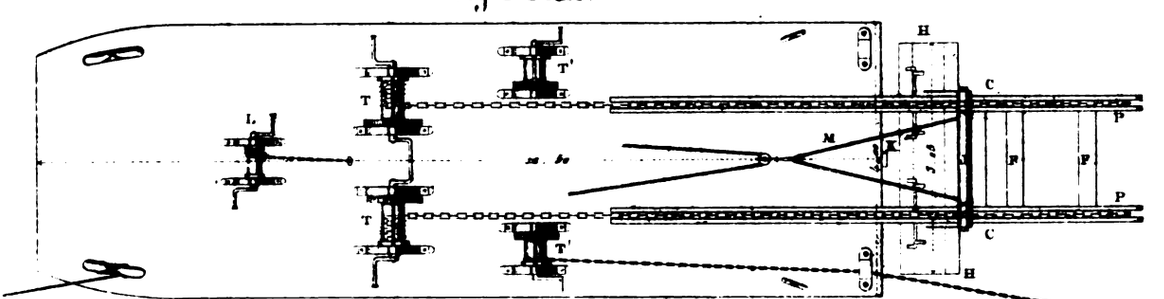


Fig. 4 Plan.



Echelle de 0m01 pour 1 mètre

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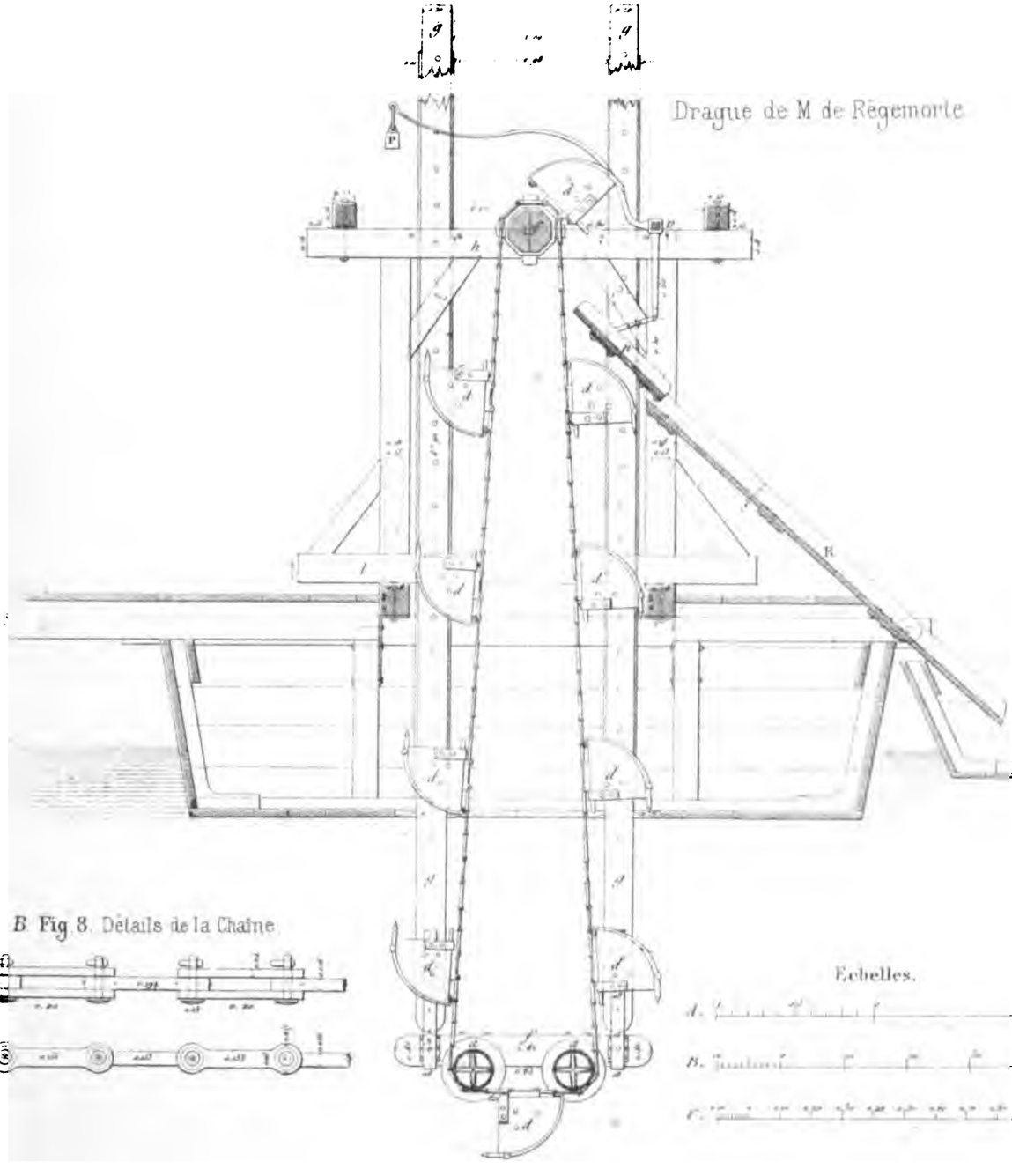
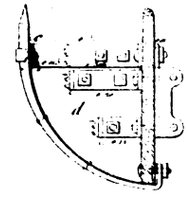
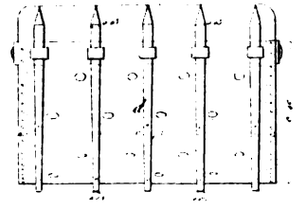
A Fig 5. Coupe des Bateaux et élévation latérale de la Machine

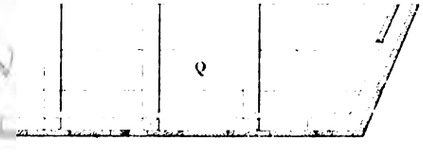


C Fig 7. Coupe d'une Hotte.

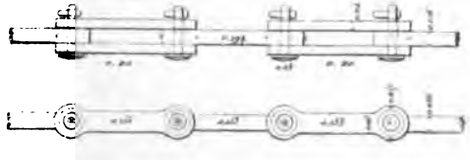


C Fig 6. Hotte vue par devant.

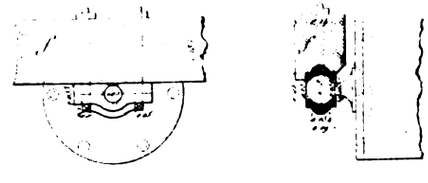




B Fig 8. Détails de la Chaine



C Fig 9. Système de rotation des rouleaux en fonte



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, Quai des Augustins, Paris.

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Grande Drague à couloir de l'isth

Fig 1 Elevation

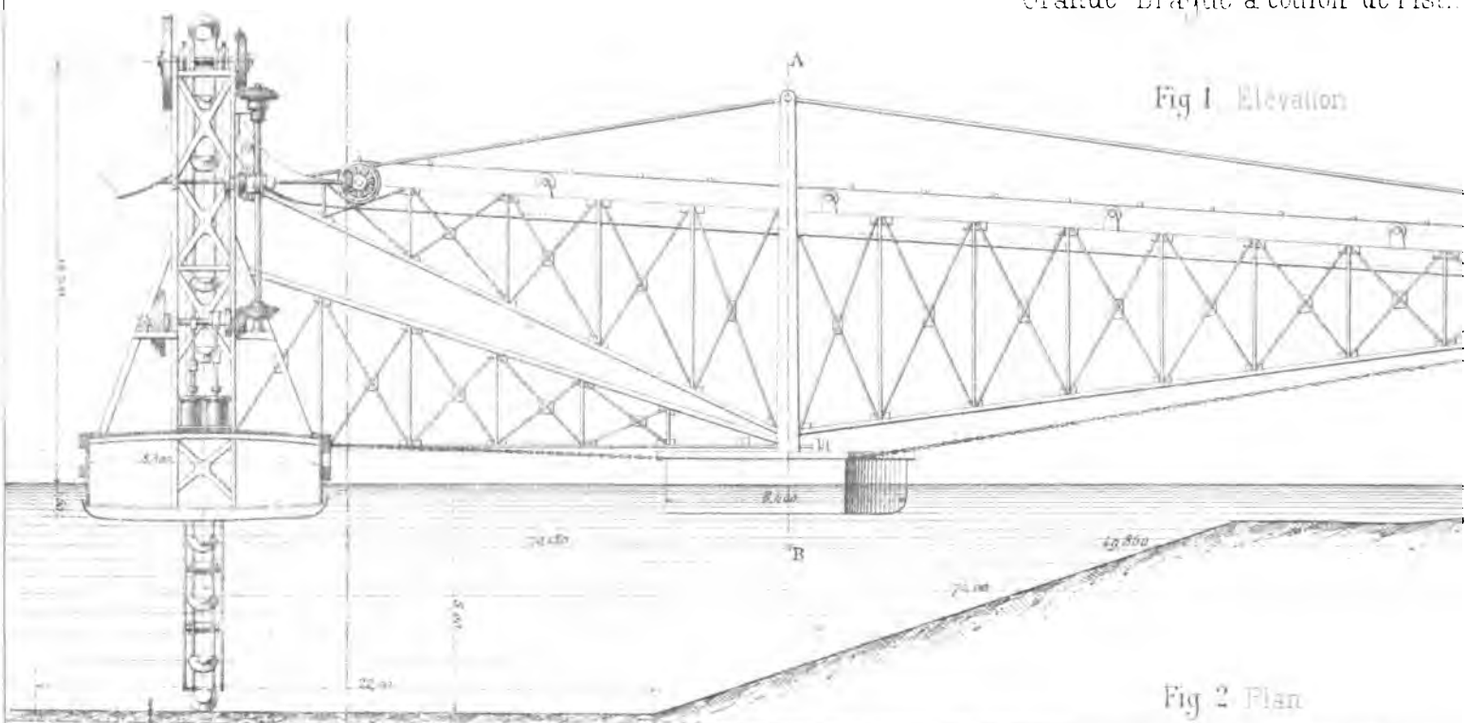
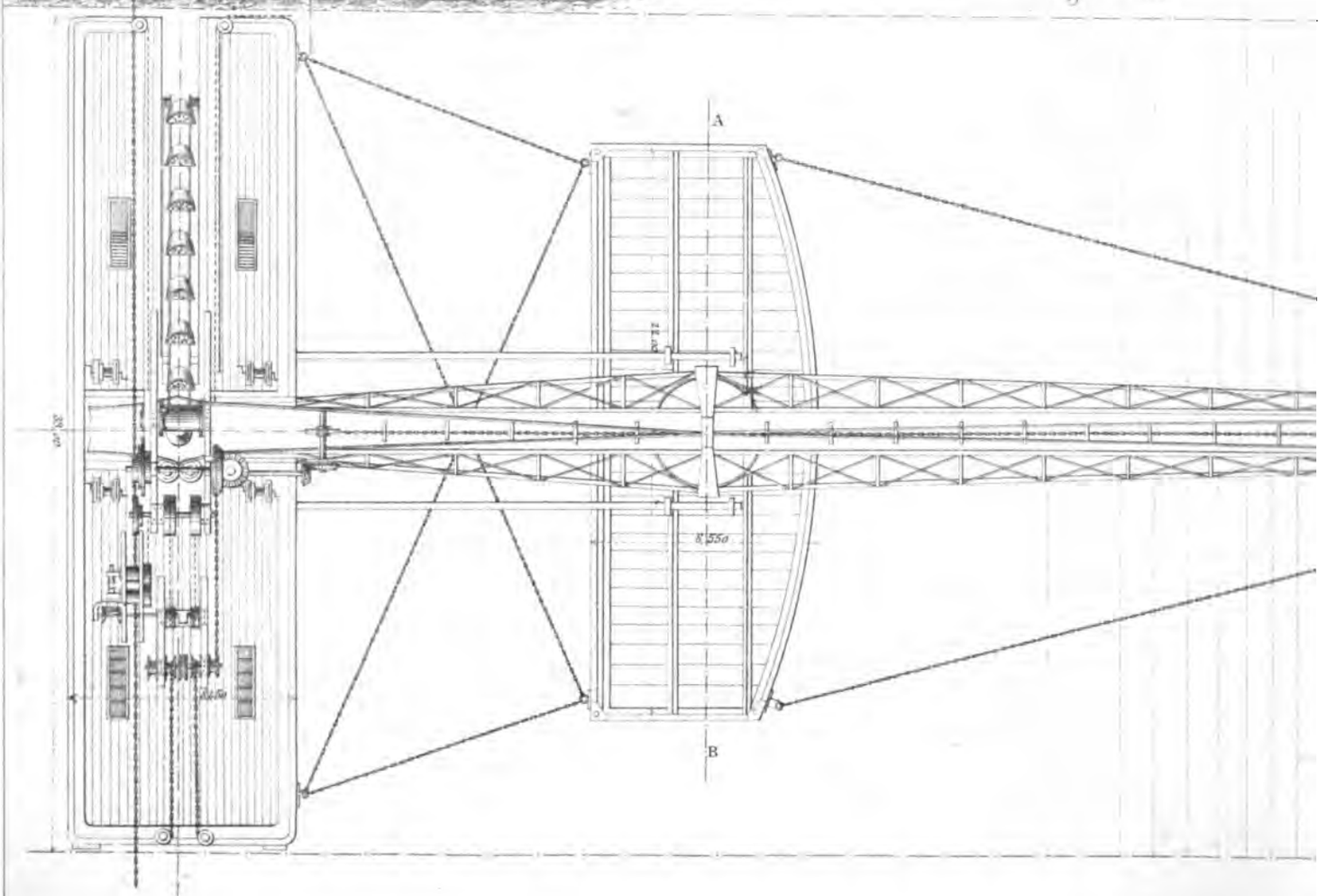


Fig 2 Plan



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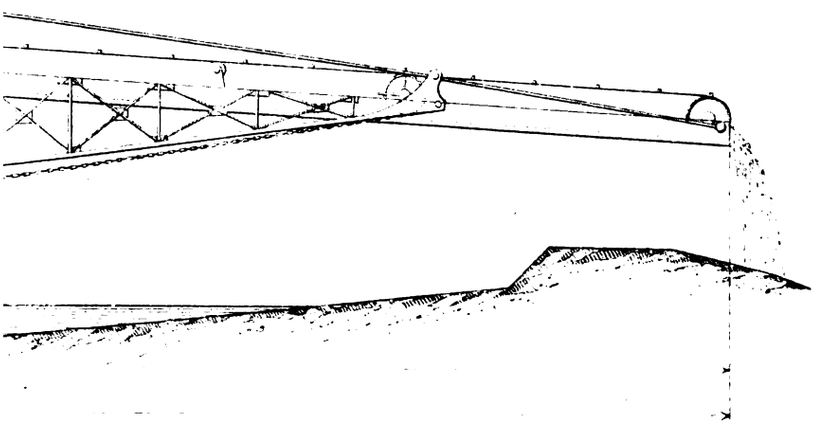
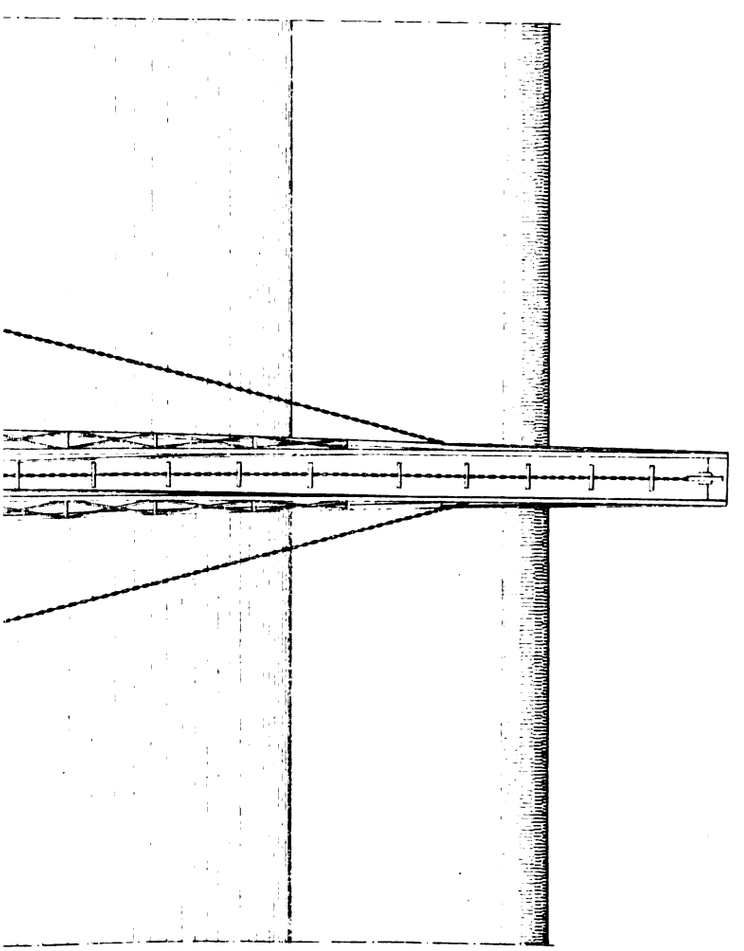
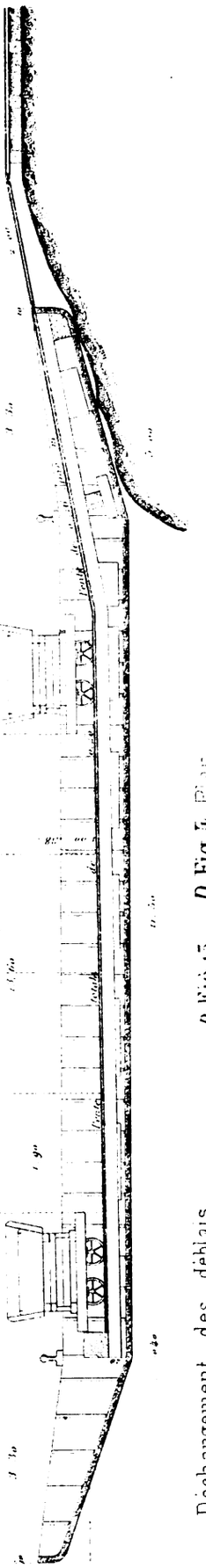
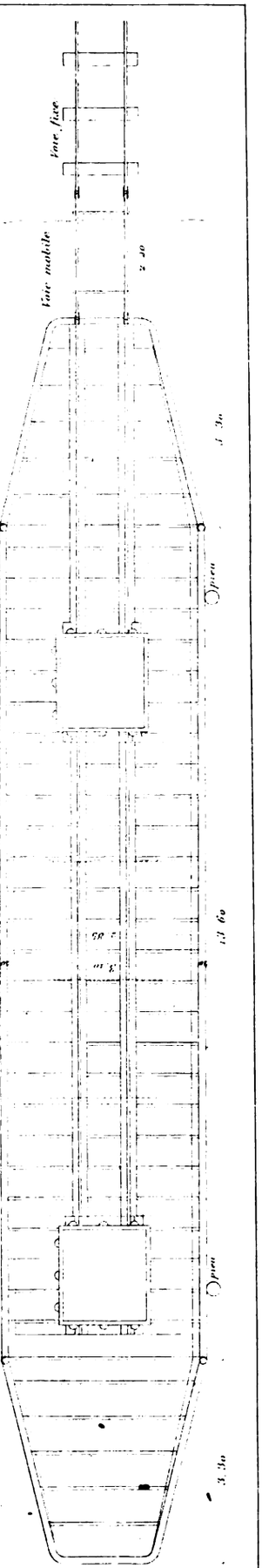






D Fig 3 Coupe en long du bateau chargé relié à la voie ferrée par la voie mobile



D Fig 5. D Fig 4. Plan

Déchargement des déblais

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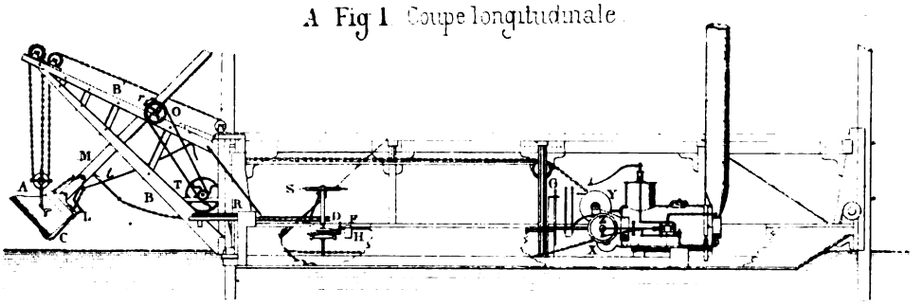
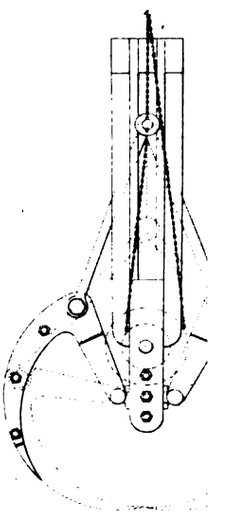
Dragues Américaines.

Drague d'Osgood

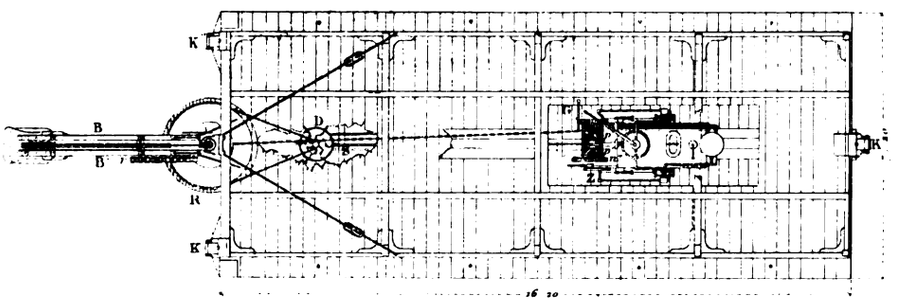
A Fig 1 Coupe longitudinale.



B Fig 7 Grappin
Enlèvement des

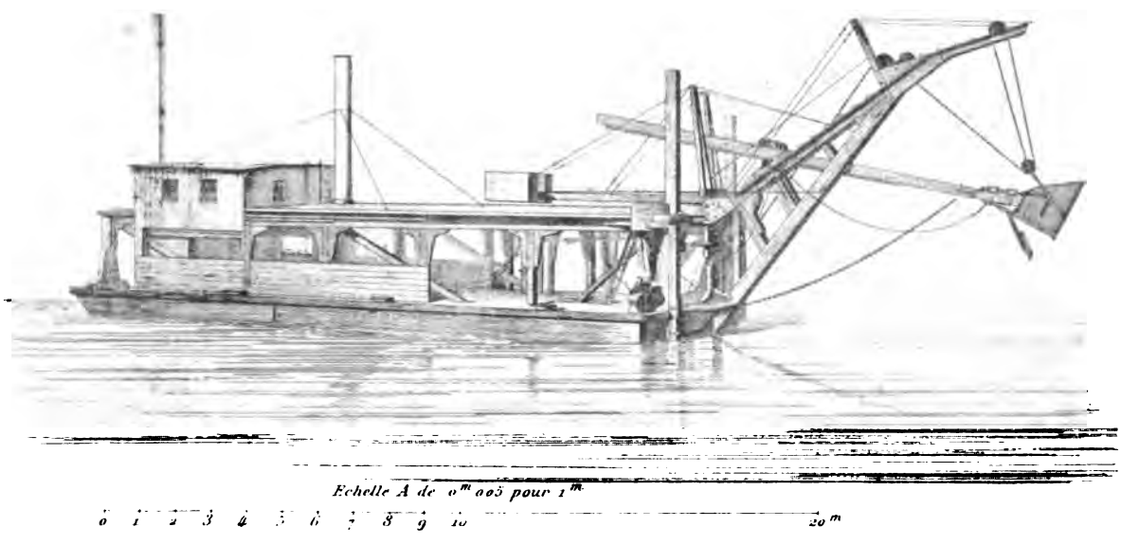


A Fig 2 Plan.



Drague d'Osgood perfectionnée par Starbuck frères.

Fig 3 Vue perspective.



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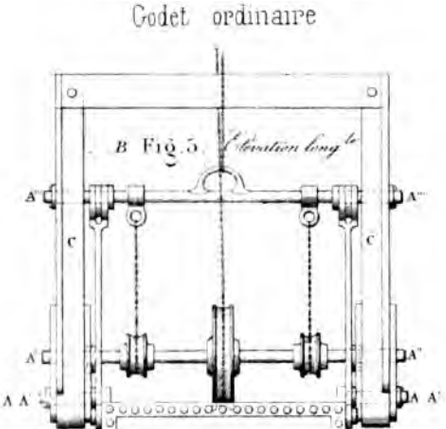
Système Morris & Cummings.

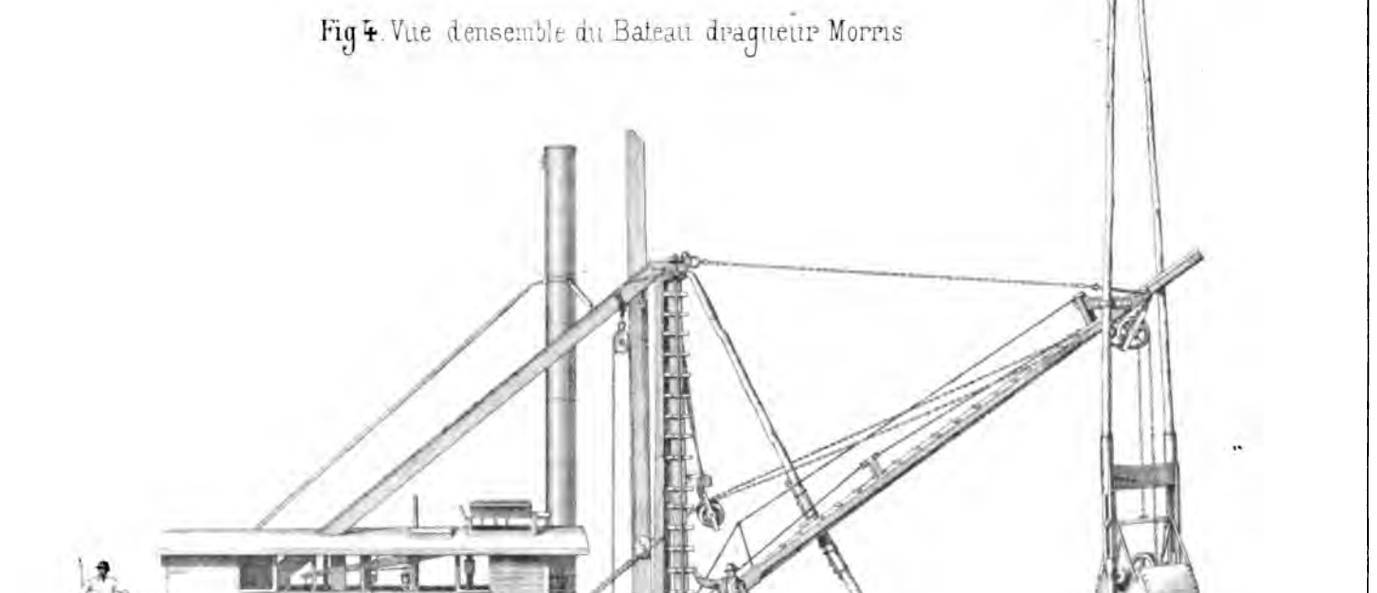
Godet ordinaire



B Fig 5. Elevation longle

B Fig 6 Elevation transversale
(le cadre enlevé)

Fig 4. Vue densemble du Bateau dragueur Morris



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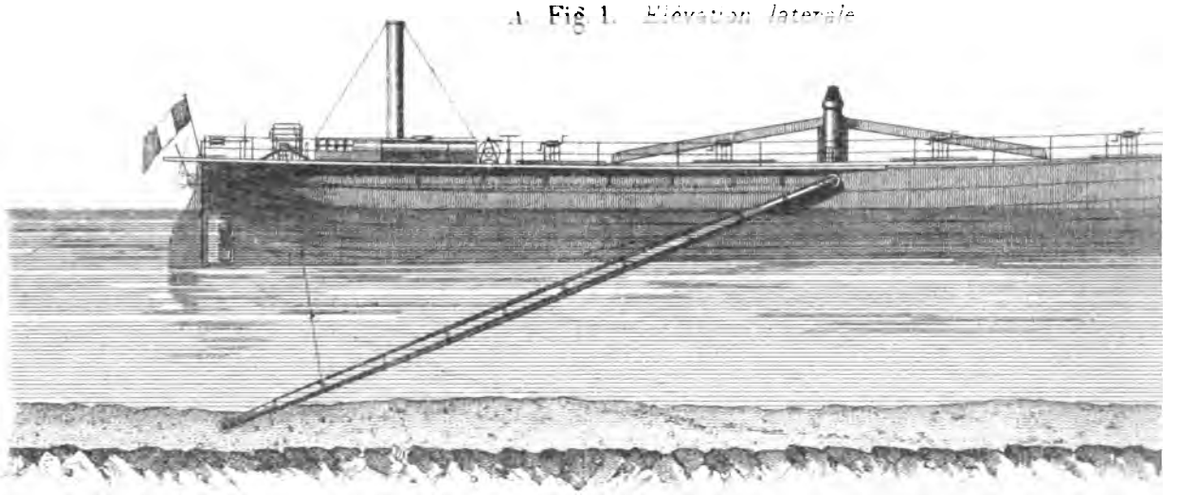
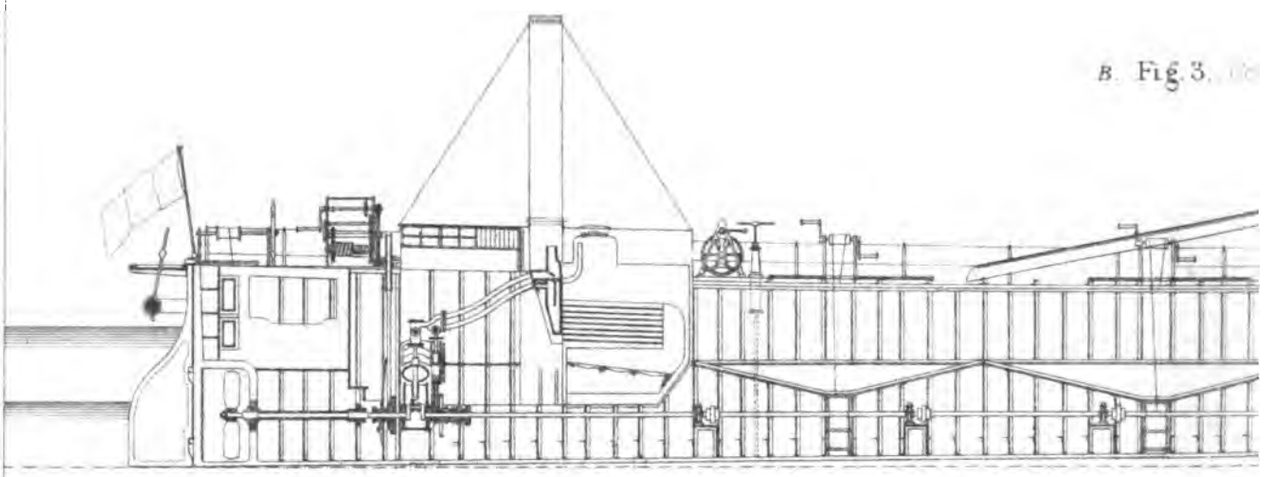
Dévase

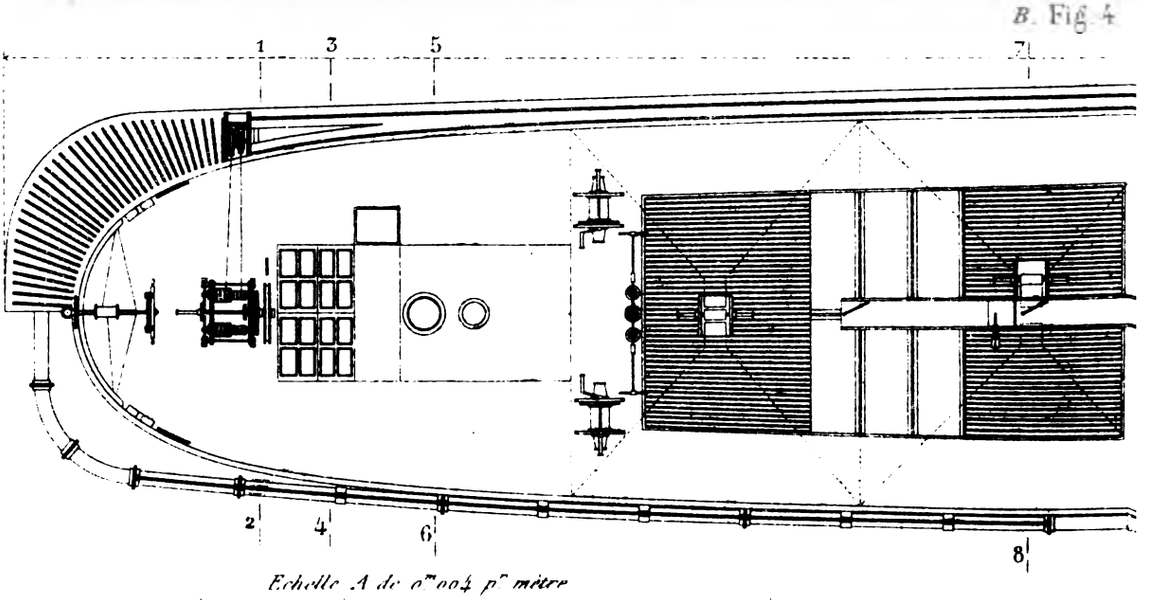
A. Fig 1. Élévation latérale



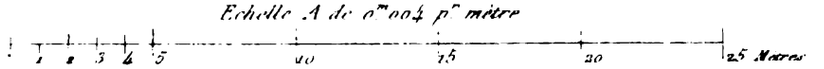
B. Fig 3.



B. Fig 4



Echelle A de 0m004 p. mètre



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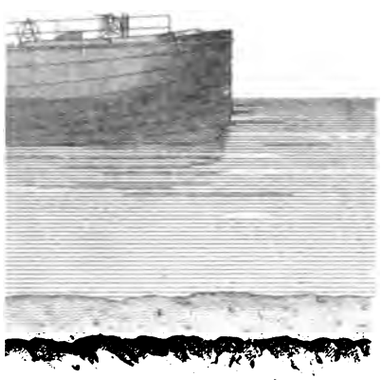
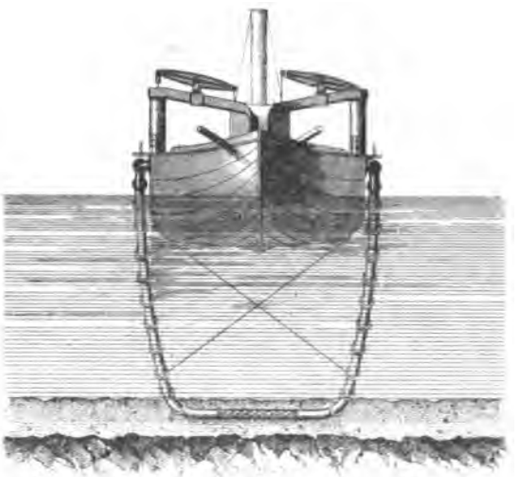
nent du port de St Nazaire

Drague-pompe

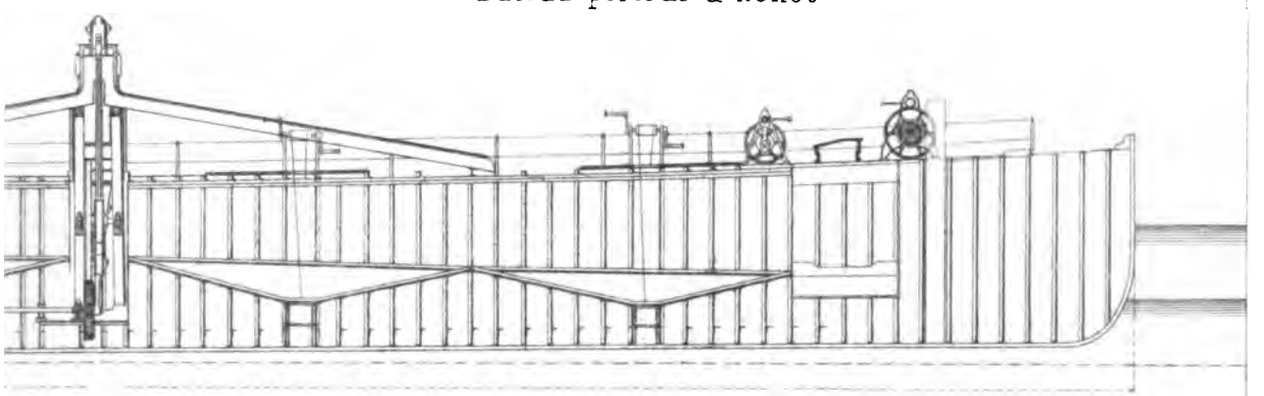


A. Fig. 2. - *Élévation de face*

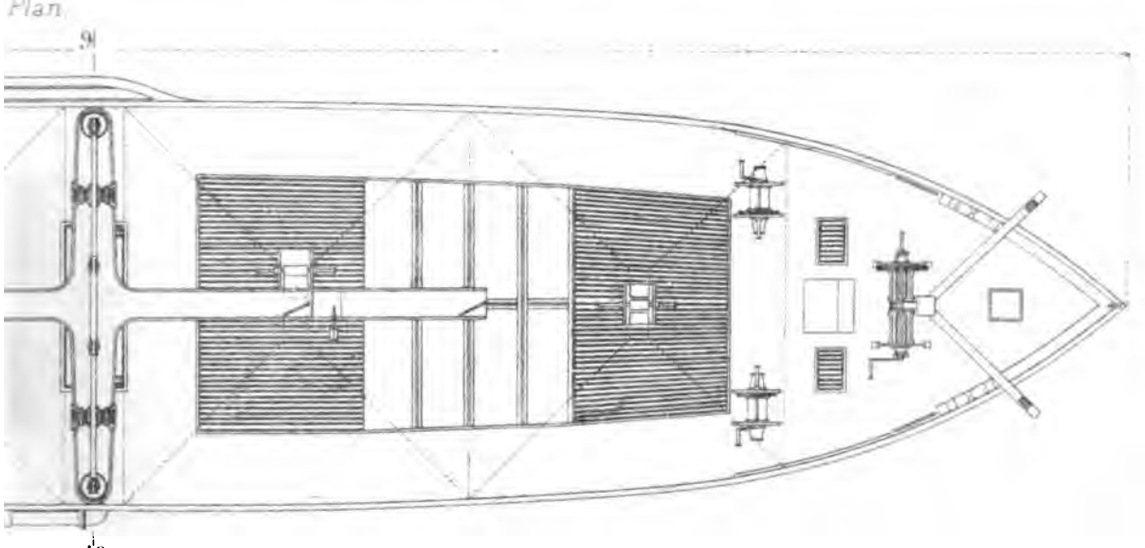


pe en long

Bateau porteur à hélice



Plan



Echelle B de o^{m}.0075 p^{r} mètre

0 1 2 3 4 5 6 7 8 9 10 *20 Mètres*

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TYPE DE DRAGUE A VAPEUR EMP

par MM REIHERSTIEGER, constructeur et SCHM

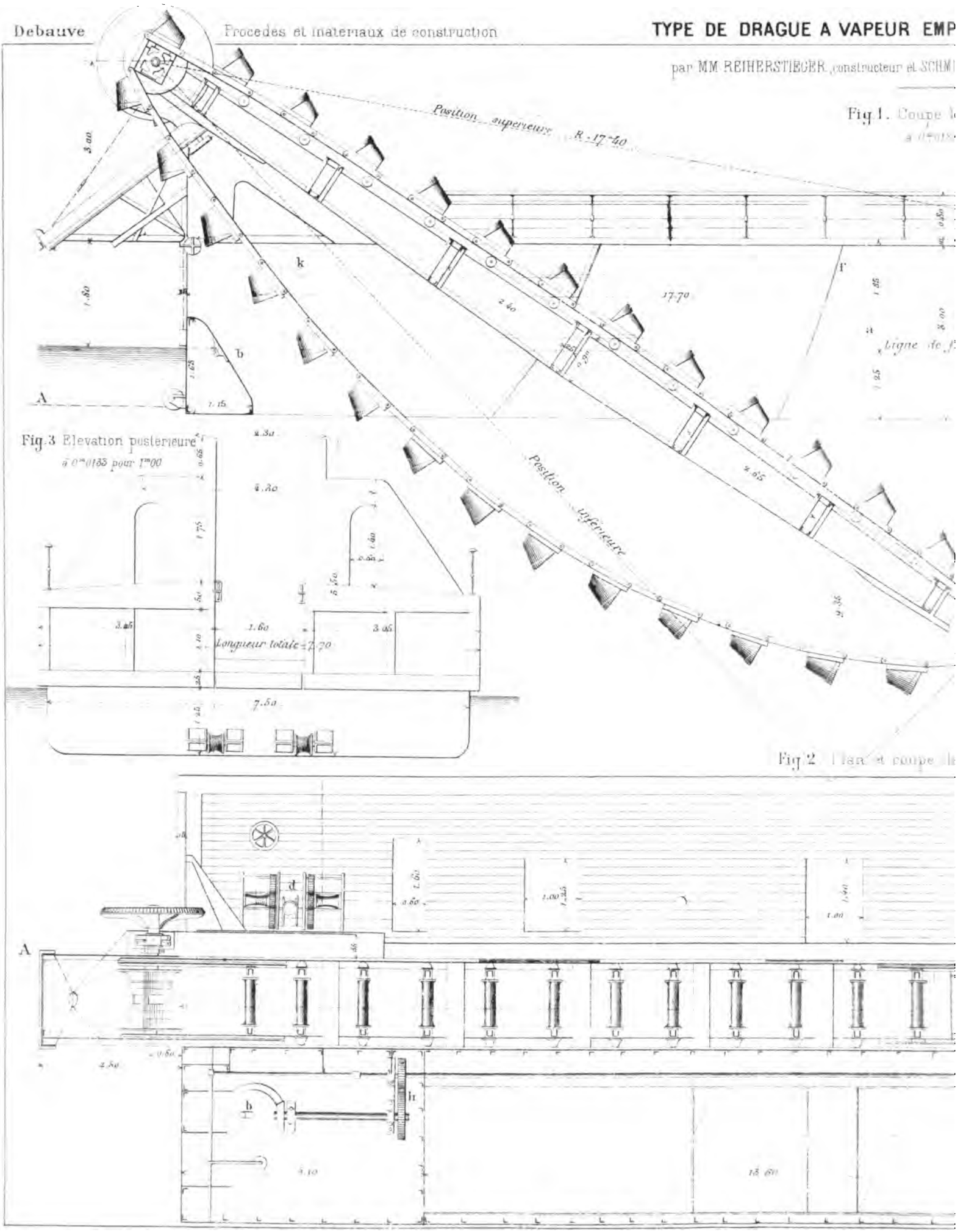

Fig. 1. Coupe l

Fig. 3 Elevation posterieure à 0m0133 pour 1m00

Fig. 2 Plan et coupe l

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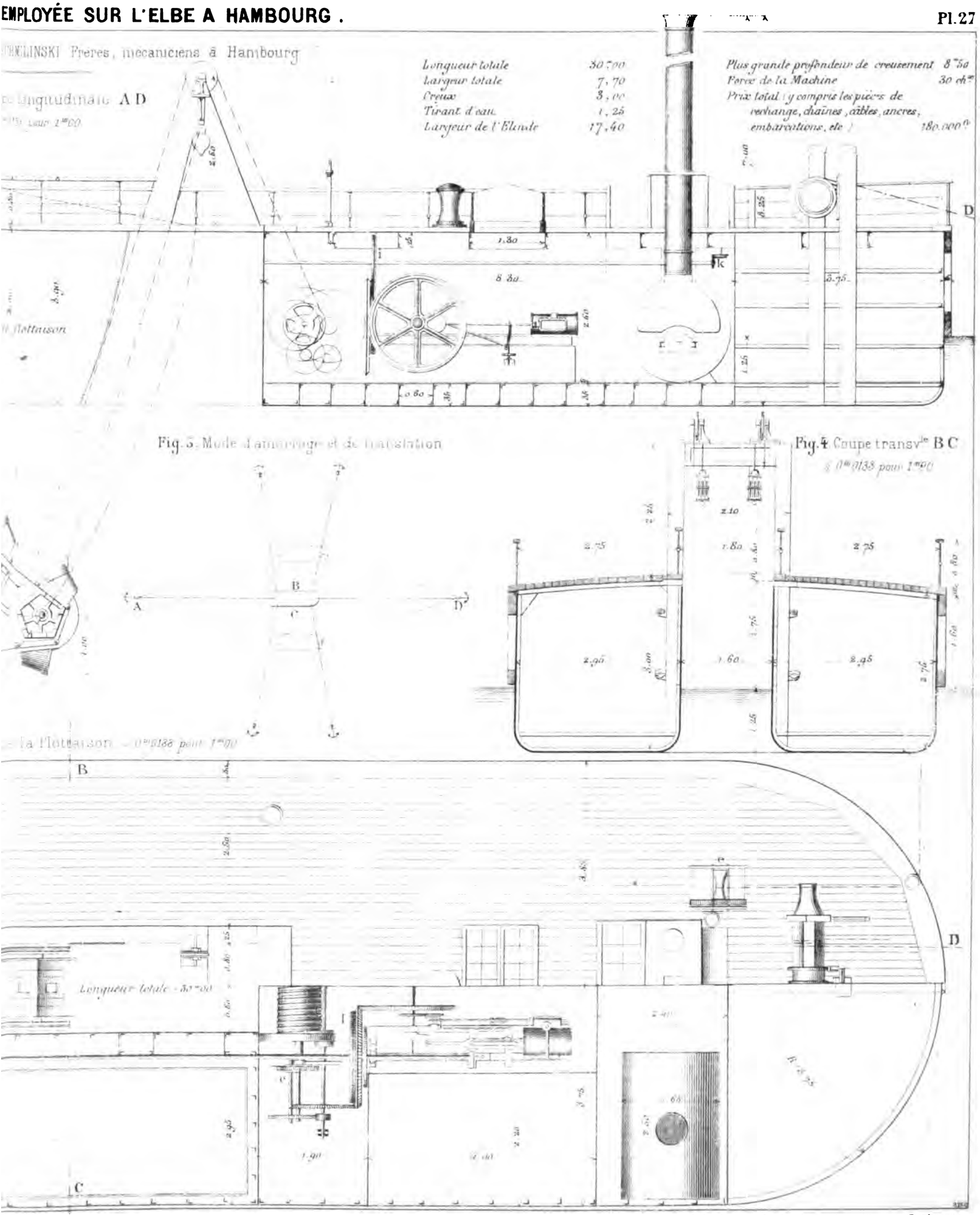

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